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The Commonwealth of Massachusetts

ANNUAL REPORT

OF THE

DEPARTMENT OF LABOR
AND INDUSTRIES

FOR THE

YEAR ENDING NOVEMBER 30, 1931

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CONTENTS

REPORT OF THE COMMISSIONER OF LABOR AND INDUSTRIES

	PAGE
Administration	5
Summary of Activities	6
Special Investigation	6
Convention	6
Inspections	7
Complaints	7
Industrial Safety	7
Industrial Health	7
Employment	7
Census of Manufactures, 1930	8
Monthly Surveys	8
Division on the Necessaries of Life	9
Division of Standards	9
Appropriations	9
Financial Statement	10

REPORT OF THE DIVISION OF INDUSTRIAL SAFETY

Inspection Work	11
Summary of Activities	11
Industrial Safety	12
Machinery Accidents	12
Building Operations	14
Free Egress from Factory Buildings	15
Lighting in Industrial Establishments	15
Labor Laws — Women and Children	16
Child Labor	16
Seats for Women and Children	17
Injuries to Employed Children	17
Prevention of Work Injuries	19
General Accidents	20
Non-Machinery Accidents	21
Industrial Health	22
Child Labor in Tobacco Fields	24
Sanitary Survey of Laundries	25
Ventilation	26
First Aid	27
Occupational Diseases	28
Cases of Industrial Illness Investigated during Year Ending November 30, 1931, by Disease, Age and Sex (Table)	28
Dermatitis	28
Cases of Dermatitis Investigated during Year Ending November 30, 1931, by Industry, Age and Sex (Table)	29
Lead Poisoning	29
Lead Poisoning Cases Investigated during Year Ending November 30, 1931, by Industry, Age and Sex (Table)	30
Gas and Fume Poisoning	30
Gas and Fume Poisoning Cases Investigated during Year Ending November 30, 1931, by Industry, Age and Sex (Table)	30
Chrome Poisoning	30
Industrial Anthrax Poisoning	30
Pneumoconiosis	31
Pulmonary Tuberculosis	32
Benzol Poisoning	32
Silicosis	34
Other Dust Diseases	34
Miscellaneous Cases	34
Sunday Work and One Day's Rest in Seven	34

Pure Drinking Water	35
Lockers	35
Home Work	35
Weekly Payment of Wages	35
Employment on Public Works	36
Eight Hour Law	37
Branch Office Activities	37
Legal Department	37

REPORT OF BOARD OF CONCILIATION AND ARBITRATION

Conciliation	38
Arbitration	42
Normality	42
List of Industries and Principal Differences in Conciliation and Arbitration Cases	42

REPORT OF MINIMUM WAGE COMMISSION

Outline of Functions	42
Work in 1931	42
Publications	43
Investigations in 1931	43
Pocketbook and Leather Goods Industry	43
Waste Sorting Industry	43
Advertisement of Non-compliances	43
Decrees and Cases	43
Inspections	46
Reinspections	46
Disposition of Inspection Cases	47
Disposition of Non-compliances Pending from Previous Years	47
Adjustments	47
Advertisements	47
Cases Pending	47
Disposition of New Cases	47
Adjustments	50
Cases Pending	50
Disposition of Cases in the Regular Inspection Work	50
Adjustments	50
Cases Pending	50
Summary	50

TABLES

Average Weekly Earnings of 820 Women Employed in 30 Establishments engaged in the Manufacture of Pocketbooks and Leather Novelties in Massachusetts: By Type of Establishment (Table 1)	44
Weekly Rates of 425 Women Employed in 39 Establishments engaged in Waste Sorting in Massachusetts: By Type of Establishment (Table 2)	45
Advertisements of Non-compliances under Minimum Wage Decrees, 1931 (Table 3)	46
Disposition of Cases of Non-compliances Pending from Previous Years (Table 4)	48
Disposition of New Cases of Non-compliance in Firms where Cases were Pending from Previous Years (Table 5)	51
Summary of Adjustments in Connection with Inspections in 1931 under Massachusetts Minimum Wage Decrees (Table 6)	52

REPORT OF THE DIVISION OF STANDARDS

Legislation enacted in 1931	54
New Equipment for Testing Heavy Capacity Scales	54
Division Publications	55
Clinical Thermometers	56

P.D. 104	3
Laboratory Work	56
Field Work of Inspectors	57
Prosecutions	58
Office Work	58
Licenses	59
Educational and Co-operative Activities	59
Local Sealers of Weights and Measures	59
Summary of Local Sealers' Work	60
Prosecutions by Sealers	61
Financial Statement	62
Retrospect	63

REPORT OF THE DIVISION OF STATISTICS

Introductory	63
Recent Industrial Changes in Massachusetts	64
I. Statistics of Labor:	
Labor Bulletins	66
Monthly Surveys and Press Notices	67
Introductory	67
Manufacturing	69
Wholesale and Retail Trade	73
Building Trades	76
Highway Construction	78
Public Utilities	78
Public Employment	80
Agriculture	81
Office, Clerical and Miscellaneous Employment	82
Building Statistics	83
II. Information Service	86
III. Statistics of Manufactures:	
Introductory	86
Summary of Principal Data	87
All Industries Combined	87
Cities	87
Towns	88
Metropolitan Boston	90
Principal Industries	92

Appendix:

Monthly Index Numbers of Employment and Earnings in Principal Manufacturing Industries, 1925-1931	
A. Employment	97
B. Average Weekly Earnings of Wage-Earners	102
Charts:	
A. Trend of Employment and Earnings in Principal Manufacturing Industries, 1925-1931 (Plates 1-8)	107
B. Value Represented by Building Permits Granted in Massachusetts, 1923-1931 and Contracts Awarded in Massachusetts and New England, 1923-1931 (Plate 9)	115
C. Trend in Cost of Industrial Building (Plate 10)	116

REPORT ON PUBLIC EMPLOYMENT OFFICES

Introductory	117
The Labor Market	117
I. Statistical Summary	117
Positions Reported Filled	117
Persons Called for by Employers	118
Persons Referred to Positions	118
Records by Sex	118
Records by Months	119
II. Veterans	119

III. Classification by Industries and Occupations	120
IV. Co-operation with the United States Employment Service	121
Chart:	
Number of Places Reported Filled by the Four State Public Employment Offices in Massachusetts, 1925-1931, By Offices	122

REPORT OF THE MASSACHUSETTS INDUSTRIAL COMMISSION	
Conferences with Representatives of Labor and of Industry	123
Tariff on Shoes	123
Agricultural Market Survey	124
Radio Broadcasts	125
Directory of Stopping Places in Massachusetts for Tourists and Vacationists	125
Magazine Articles, Pictures	126
Car Advertising Signs	126
Massachusetts Pamphlets	126
Conference with Organizations Maintaining Tourist Information Booths	126
Mineral Substances	127
Industrial Development	127
Ludlow Manufacturing Associates	128
Monthly Survey	128
Miscellany	128
Publicity	129
Conclusion	129

REPORT OF THE DIVISION ON THE NECESSARIES OF LIFE	
Introductory	130
Installment Purchase	131
Rental Adjustment	131
Wage Attachment	132
Cost of Living Index	133
Fuel	133
Credit Policy	135
Trend of Living Costs	136
Comparative Cost of Living	138
Elements of the Budget	138
Food	138
Shelter	141
Clothing	144
Fuel and Light	145
Sundries	146
Petroleum Products	146
Gasoline	147
Crude Oil	148
Conclusions	148
Diagram	145
Appendix I	149
Appendix II	159

The Commonwealth of Massachusetts

DEPARTMENT OF LABOR AND INDUSTRIES OFFICIALS

E. LEROY SWEETSER, EVERETT, *Commissioner*.
 ETHEL M. JOHNSON, BOSTON, *Assistant Commissioner*.
 EDWARD FISHER, LOWELL, *Associate Commissioner*.
 HERBERT P. WASGATT, WABAN, *Associate Commissioner*.
 SAMUEL ROSS, NEW BEDFORD, *Associate Commissioner*.

HEADS OF DIVISIONS AND BRANCHES

Board of Conciliation and Arbitration.

EDWARD FISHER. HERBERT P. WASGATT. SAMUEL ROSS.

Division of Minimum Wage. ETHEL M. JOHNSON, *Acting Director*.

EDWARD FISHER. HERBERT P. WASGATT. SAMUEL ROSS.

Division of Statistics. ROSWELL F. PHELPS, *Director*.

MARGARET SHEA, *Statistician for Manufactures*.

LESTER E. ARCHIBALD, *Statistician for Labor*.

Division of Industrial Safety. JOHN P. MEADE, *Director*.

JOSEPH MONETTE, *Counsel*.

Division of Standards. FRANCIS MEREDITH, *Director of Standards*.

Division on the Necessaries of Life. RALPH W. ROBART, *Director*.

Massachusetts Industrial Commission:

BRADBURY F. CUSHING, *Chairman*, LOUIS E. KERSTEIN, ANDREW RAE BURN,
 ROBERT J. WATT, PAUL E. FITZPATRICK, *Members Ex-Officio*, E. LEROY SWEET-
 SER, *Commissioner of Labor and Industries*, ARTHUR W. GILBERT, *Commissioner*
of Agriculture.

LEON M. LAMB, *Executive Secretary*.

PUBLIC EMPLOYMENT OFFICES.

Boston. EVERETT L. HANNA, *Superintendent*.

Springfield. GEORGE F. HARDING, *Superintendent*.

Worcester. WILLIAM A. WILDER, *Superintendent*.

Federal Director of Employment Service. E. LEROY SWEETSER, *Commissioner*.

REPORT OF THE COMMISSIONER OF LABOR AND INDUSTRIES

To the General Court:

The twelfth annual report of the commissioner of labor and industries is herewith submitted. It contains a summary of the work of the department for the year ending November 30, 1931, a statement of the expenditures for this period, and includes the reports of the heads of the six divisions into which the department has been organized, which give in detail the character and results of the work accomplished.

The divisions of the department are as follows: division of industrial safety, board of conciliation and arbitration, division of minimum wage, division of statistics, division of standards, Massachusetts industrial commission and the division on the necessities of life. The employment work is now in the division of statistics but should be made a separate division under a director. This the commissioner endeavored to accomplish, but was not able to secure the necessary funds.

Administration. The department is under the supervision and control of the five commissioners, except where the law provides otherwise, as for example, the three associate commissioners, one of whom must be a representative of labor and one a representative of the employers of labor, compose the board of conciliation and arbitration and also the minimum wage commission. The commissioner represents the department of the Massachusetts industrial commission, which is composed

of a board of seven commissioners, one of whom represents labor. The director of the division of standards and the director of the division on the necessities of life have certain independent functions and duties.

Summary of Activities. Hearings before all the commissioners have been few, as the policy of investigation and adjustment between the parties has been carried out with success. Adjustments have been made without a hearing except in one case, that of a petition by the felt hat industry that the department declare its occupation seasonal under authority of section 56 of chapter 149 of the General Laws. This petition was finally withdrawn after a hearing.

The commissioner received 156 applications requesting authority under chapter 236 of the Acts of 1923, to permit laborers, workmen and mechanics to work more than eight hours in any one day on contracts entered into by the department of public works in the construction of highways. After investigation, 136 permits were granted.

Special Investigation. The work under all building and road construction contracts entered into by the state and municipal authorities has been frequently and regularly inspected to ascertain whether the laws relating to the hours of labor, employment of veterans and citizens, and the rate of pay have been complied with. Adjustments were made where there was any question concerning the prevailing rate of wages and where aliens were employed, the authorities in the cities and towns near the location of the work were notified to send citizens who were able and willing to do the work to take the place of the aliens, and the inspectors checked the results carefully. Over twelve hundred veterans have been placed on these jobs. No record of the number of citizens placed has been available.

The appropriation of public funds to do public work to relieve unemployment does not accomplish its object unless the unemployed citizen who is able and willing to do the work is given an opportunity and this the department has accomplished.

An investigation was made in the tobacco raising industry in the western part of the state concerning the employment of children, the hours of work and the sanitary conditions of the places of employment.

A special investigation was made of the laundries in all parts of the commonwealth to ascertain if proper safety devices were provided to protect the worker from accident, and to see that the sanitary conditions were such as to maintain the worker in health.

The commissioner investigated the employment of Canadians in the cutting of lumber in this country, in Northern Maine, New Hampshire and Vermont, with the result that permits to import lumbermen from various parts of Canada were refused by the federal government on the statement by the commissioner that he could furnish men from Massachusetts to do this work.

The importation of Canadian hand line fishermen to man fishing vessels going out of Massachusetts ports was investigated by the commissioner, and through the help of the United States immigration commissioner, Mrs. Anna C. Tillinghast, and through the efforts of Mr. Everett L. Hanna, superintendent of the Boston Public Employment Office, Massachusetts fishermen were given an opportunity to do this work.

Convention. The eighteenth annual convention of the Association of Governmental Officials in Industry of the United States and Canada, composed of representatives of the various departments of labor and industries of the United States and Canada, both federal and state, was held at the Hotel Statler in Boston on May 18 to 22 inclusive. This was the first meeting of the association in Boston since 1898. The department was the host and with the assistance of the commonwealth and the city of Boston, a very successful program was arranged, including speakers of note on important subjects relating to labor and industry. Our industrial inspectors took advantage of this opportunity to arrange a special conference at which they were addressed by Mr. James L. Gernon, director of the division of inspection of New York, and Mr. John Roach, Deputy Commissioner of Labor of New Jersey. The complete program, with the addresses on the various subjects, which contain valuable data, can be obtained from the United States Bureau of Labor Statistics, Bulletin No. 563 for January, 1932.

Inspections. The department, through the division of industrial safety, made a total of 56,407 inspections and reinspections in 41,365 establishments, in which 727,024 persons were employed. As a result of these inspections, 8,095 written orders and 6,011 verbal orders to correct conditions were issued. Although the number of establishments inspected this year were 9,943 more than the previous year, there were 45,035 less employees, and the number of males and females between the ages of fourteen and sixteen has decreased from 10,069 to 7,996.

Complaints. Valuable assistance is rendered the department through information received from workers and others interested in the enforcement of the labor laws, and every complaint so received is investigated and action taken when violations of the labor laws, or rules and regulations are discovered. There were 912 such complaints. In addition, 2,070 claims were filed for non-payment of wages. These claims increase every year. In 1920, the first year of the department, there were 773 claims, amounting to \$5,749.55; while in 1931, the amount paid over to the claimants through the efforts of the department was \$52,094.82.

Industrial Safety. The important work of safeguarding employees from industrial hazards is carried on through the division of industrial safety. Reports of all accidents are obtained through the industrial accident board. For the year ending June 30, 1931, there were 50,006 tabulatable injuries reported, which is 11,735 less than in 1930. The number of deaths was 282. One thousand one hundred and sixty-seven accidents were investigated and 1,987 safety orders issued by the department to prevent possible accidents.

Industrial Health. The department issued 3,160 health orders during the year. Reports of 437 cases of industrial disease have been made to the department of public health, as required by law. Massachusetts is the only important industrial state in which compensation is paid for all industrial or occupational diseases, and consequently all cases of sickness of employees are reported by employers, and the information thus obtained is of great value to the department. Every such report is carefully examined by two regularly employed industrial physicians, who have had long experience in this work, and when occasion requires in special cases, outside expert assistance is obtained. Action is taken to prevent a recurrence, not only in a particular establishment, but in all others where similar work is carried on. A record is made of every dangerous substance used in a factory. This record is checked by the chief inspector and our two industrial physicians.

Employment. Due to the depression, which has existed all through the year, the department devoted considerable time and effort to finding jobs for the unemployed. The commissioner served on the unemployment commission appointed by Governor Allen and when this commission was dissolved, the work was carried on by the department and the commissioner, personally, until a new commission was appointed. The commissioner served on the unemployment committee appointed by the mayor of Boston, and on the commission appointed by the mayor of Everett, the city in which he resides. He served also as chairman of the state committee on unemployment of the American Legion. Through the efforts of the commissioner an additional appropriation was obtained through the legislature to further extend the monthly survey of the number employed in industry so that a better tabulation of those who were out of employment could be obtained from month to month. With this added fund, the commissioner, desirous of providing work for as many as possible, gave temporary employment in the department to 74 persons during the year.

There were over 120 private employment offices in the city of Boston alone, and through the secretary of their association, Miss Grace E. Cooke, they rendered much assistance to the department when called upon by giving information and assisting the department in its placement work. Our industrial inspectors were alert to all times to place men who were unemployed. The decrease in the number of employment offices was reflected in a reduced number of placements by our four public employment offices and the records show a marked decrease in 1931 as compared with corresponding records for 1930. The total number of positions reported filled this year by our four offices combined was 14,055, which was less by 5,375, or 27.7 per cent than the number (19,430) reported filled in 1930. The number of persons called for by employers in 1931 was 16,915, which was less by 6,313, or 27.2

per cent than the number (23,228) called for in 1930. Of the 14,055 positions reported filled during the year 1931, 9,016 were filled by males and 5,039 filled by females. The number of veterans for which employment was found, outside of those on public construction work, was 1,209.

A resolve, chapter 64 of the Resolves of 1931, as recommended by the commissioner, was passed by the legislature, providing for the appointment of a special commission on the stabilization of employment in Massachusetts. The duties of this commission are to collect and publish for the benefit of employers and employees in Massachusetts information as to methods of regularization and stabilization of business and employment, and to make such further study within the spirit of this resolve as may be helpful in promoting steadier employment for wage earners in Massachusetts. The sum of \$35,000 was appropriated for the use of this commission.

The commissioner took a leave of absence during June and July and visited Europe for the purpose of studying labor and unemployment conditions, and made a special visit to Zlin in Czechoslovakia for the purpose of investigating the Bata shoe factories in that place. He was given every opportunity by Mr. Bata to obtain such information as he desired for the benefit of the shoe manufacturers of Massachusetts.

The commissioner worked with representatives of the employees of the Charlestown Navy Yard in an endeavor to stabilize employment at the yard, through contact with the navy department at Washington and our representatives in congress. The results for the year were very encouraging.

Census of Manufactures, 1930. The census of manufactures in Massachusetts for the year 1930 was taken by the division of statistics during the past year, independently of the United States bureau of census. According to the preliminary returns, which are subject to minor corrections, the total number of manufacturing establishments in operation during the year 1930 was 9,578; the total value of products manufactured in these establishments amounted to \$2,676,940,340; the value of stock and materials used in manufacture amounted to \$1,333,945,627; and the difference between these amounts (\$1,342,994,713) represents the *value added* by the various manufacturing processes. The average number of wage-earners employed in the 9,578 establishments was 481,369, and the total amount paid in wages was \$574,624,139.

A comparison of the preliminary totals for 1930 with the corresponding final totals for 1929 shows that there was a decrease in each of the principal items, as follows: value of products, 21.1 per cent; value of stock and materials used, 20.5 per cent; value added by manufacture, 21.7 per cent; total amount paid in wages, 17.2 per cent; and average number of wage-earners employed, 13.6 per cent.

The principal data for the leading industries, the 39 cities by industries thereunder, and the principal industrial towns are presented in the report of the division of statistics, which forms a section of this report. Press announcements of the results of the census for the state as a whole, by industries, for each of the 39 cities, and for the principal industrial towns have been issued, and copies of these press announcements have been sent to chambers of commerce and other organizations, public officials, and other individuals who have requested them, in order that they might have available, as early as possible, the facts with reference to manufacturing in the individual cities and towns, and industries in which they are particularly interested.

Monthly Surveys. During the past year the department, through the division of statistics, has extended the scope of its monthly surveys relative to employment and earnings of wage-earners in Massachusetts, so as to include additional fields of employment, and has also increased the representation in certain other fields previously covered. This extension was made possible by a special act of the legislature (Chapter 14, Acts of 1931), appropriating additional funds for this work. The fields of employment now covered regularly are: manufacturing, wholesale and retail trade, public utilities, building construction, highway construction, public employment, office and miscellaneous employment, and agricultural employment. The last four named are the newer fields covered. The number of reports received each month has increased from 4,500 to 7,500 and the number of wage-earners covered has been increased from 290,000 to 375,000.

A series of index numbers showing trends of employment in the principal industrial groups have been computed, and charts, graphically illustrating such trends, have been prepared for the use of the department and for publication in the departmental reports. A general weighted index of employment for the state is now being computed, this having been made possible as a result of the extension of the scope of the monthly surveys so as to include an adequate representation of all important manufacturing industries and other fields of employment in the state.

Division on Necessaries of Life. Attention is called to the report of the director of the division on the necessities of life. This division, due to the depression, has been exceptionally busy and has adjusted over five thousand cases concerned with the protection of the poor and unfortunate, and has investigated the charges paid in many cases for the necessities of life.

Division of Standards. In the report of the division of standards it will be noted that they have obtained a specially designed Autocar truck, capable of testing a twenty-ton scale up to seventy-five per cent of its capacity. This was much needed and is the latest production of its kind.

Appropriations. His Excellency, Joseph B. Ely, on September 17, 1931, in a letter addressed to the department heads, requested them "to cut the requested appropriations not less than five per cent under the actual appropriations for 1931." "It will help you," the letter stated, "in the preparation of these figures to understand that for the coming year there will be no salary increases, and except in cases of extraordinary benefit, no allowance for travel to cover attendance at conventions." His Excellency further advised: "The policy for 1932 should include no expansion of service unless required by public distress or where the state is irrevocably committed to a hard and fast policy. Your cooperation is also urged in the consideration of any service that may be abandoned or postponed until the hardships of the present financial and industrial situation have relieved or improved." On the receipt of this letter the commissioner, with the help of the heads of the different divisions, endeavored to carry out this request and the appropriations submitted for 1932 were prepared in compliance therewith. The total amount of the several appropriations for the use of the department during the year ending November 30, 1931, was \$475,580; the expenditures amounted to \$465,228.66, leaving an unexpended balance of \$10,351.34, in addition to which there was reserved for outstanding bills an amount estimated at \$835.00. There has been collected in fees through the division of standards and paid to the treasurer of the commonwealth the sum of \$93,250.62.

In filing this report, the commissioner, after twelve years of service, is severing his official connection with the department. The department was created twelve years ago and during that time it has grown in size and its duties increased until it has become one of the outstanding departments of labor and industries in this country. Its work has been carried out in a quiet and efficient manner and has, I believe, earned the respect of both labor and industry. The progress made is due to the faithful and efficient service of the employees who at all times have been keenly interested in the work of the department.

E. LEROY SWEETSER,

Commissioner of Labor and Industries.

FINANCIAL STATEMENT FOR 1931

GENERAL

Account	Appropriation	Expenditures	Unexpended Balance
Officials	\$20,500 00	\$19,875 00	\$625 00
Personal services	355,699 00	351,004 83	4,694 17
Contingent and travel	107,805 54	103,523 37	4,282 17
Wage boards	750 00	—	750 00
Totals	\$484,754 54	\$474,403 20	\$10,351 34
Collected in fees and paid into the treasury of the commonwealth			\$93,250 62
Collected in fees and paid into treasuries of cities, towns and counties of the commonwealth			48,249 00

BY DIVISIONS

Administration	Appropriations	Expenditures	Unexpended Balance
Commissioner, assistant commissioner, associate commissioners (personal services)	\$20,500 00	\$19,875 00	\$625 00
Clerical and other assistance to administration	5,200 00	5,070 00	130 00
<i>Division of Industrial Safety</i>			
Personal services	134,800 00	133,568 17	1,231 83
Expenses	34,000 00	33,254 84 ¹	745 16
<i>Board of Conciliation and Arbitration</i>			
Personal services	21,000 00	20,430 00	570 00
Expenses	5,150 00	4,942 99	207 01
<i>Division of Minimum Wage</i>			
Personal services	15,000 00	14,718 32	281 68
Expenses	6,069 26	5,854 84 ²	214 42
<i>Wage Boards</i>			
Personal services and expenses	750 00	—	750 00
<i>Division of Statistics</i>			
Personal services	58,300 00	58,286 17	13 83
Expenses	18,507 67	18,262 81	244 86
<i>Public Employment Offices</i>			
Personal services	59,300 00	59,211 92	88 08
Expenses	15,214 39	15,011 33 ³	203 06
<i>Division of Standards</i>			
Personal services	32,880 00	31,692 08	1,187 92
Expenses	16,436 68	15,180 02 ⁴	1,256 66
<i>Massachusetts Industrial Commission</i>			
Personal services	17,000 00	15,840 17	1,159 83
Expenses	10,115 84	9,148 54 ⁵	967 30
<i>Division on the Necessaries of Life</i>			
Personal services	12,219 00	12,188 00	31 00
Expenses	2,311 70	1,868 00 ⁶	443 70

¹ Not including outstanding bills estimated at \$538 58

² " " " " " " 5 71

³ " " " " " " 95 29

⁴ " " " " " " 20 05

⁵ " " " " " " 77 26

⁶ " " " " " " 97 93

REPORT OF THE DIVISION OF INDUSTRIAL SAFETY

JOHN P. MEADE, *Director*

INSPECTION WORK

The enforcement of labor laws is accomplished through regular inspection of industrial establishments. In this connection compliance with requirements to safeguard machinery is secured; adequate lighting is provided in the work place; exposure of employees to the danger of inhaling irritant dust and fumes is prevented, and sanitary provisions are maintained in accordance with the standards fixed by rules and regulations for this purpose.

Enforcing the statutes dealing with employment of women and children, investigating building operations and supervising the erection of stagings and scaffolds, securing compliance with the provisions in relation to the employment of laborers, teamsters and mechanics in the construction of public works, and other duties of the same nature are included in this work. Special problems affecting employees in industry are from time to time brought to the attention of the commissioner for his consideration and direction.

During the year there was a total of 46,365 inspections and 10,042 reinspections.

SUMMARY OF ACTIVITIES

	All establishments	Manufacturing and Mechanical	Mercantile
Number inspected	46,365	16,209	21,331
Number employed:			
<i>Males</i>			
14 to 16 years	4,039	2,332	1,707
16 to 21 years	40,260	31,199	9,061
Illiterate	715	697	18
Over 21 years	415,239	342,574	72,665
	460,253	376,802	83,451
<i>Females</i>			
14 to 16 years	3,957	3,632	325
16 to 21 years	58,798	47,945	10,853
Illiterate	886	874	12
Over 21 years	203,130	159,695	43,435
	266,771	212,146	54,625

The number of orders outstanding November 30, 1930 was 930, and the number of written orders issued in 1931 was 8,095, making a total of 9,025. The number of orders complied with in this period was 14,106, of which 6,011 were verbal orders and complied with at time of issuance. Because the firm discontinued business, there were 46 orders cancelled during the year.

Summary of Inspections

The following statement indicates the activities of the inspection force for the year ending November 30, 1931:

Inspections: Mercantile, 21,331; mechanical, 16,209; building operations, 5,919; painting, 1,088; road construction, 1,818. Total, 46,365.

Reinspections: 10,042.

Visits

Complaints, 2,977; accidents, 1,629; occupational diseases, 835; homework in tenement houses, 112. Total, 5,553. Home work licenses issued, 225. Painters' registrations issued, 312.

Orders Issued

Labor: Employment of women and minors, 224; posting time notice, 3,669; minors in prohibited trades, 31; procuring and returning certificates, 3,012; public exhibition of children, 8. Total, 6,944.

Health: One day's rest in seven, 180; ventilation, humidity, dust removal, drinking water, and coreroms, 262; lighting, injuries to eyes, 191; toilet and washing facilities, 1,432; meal hours, seats for women, lockers, 65; common drinking cup and towel, 160; first aid room and medical chest, 870. Total, 3,160.

Miscellaneous: 9.

Safety: Communication with engine room, 22; safeguarding machinery, 1,806; free egress, 94; unguarded openings, 65. Total, 1,987.

Building operations: Painting orders, 392; building operations, 1,131. Total, 1,523.

Public works: Prevailing rate and weekly payment of wages, 24; citizens' preference, 384; 8-hour day, 57; 48-hour law, 20. Total, 485.

Totals: Orders issued, 14,108; orders complied, 14,106; which indicated 6,011 verbal orders complied with at the time of issuance and 882 orders outstanding December 1, 1931.

Complaints

Employed under 14 years of age, 8; employed without certificate, 18; employed in prohibited trades and on dangerous machinery, 10; illegal public exhibition of children, 4; health and sanitation, 116; time notices not posted, 26; at time other than stated, 8; overtime employment of women and minors, 474; public works, 161; illegal advertising, 7; unguarded machinery, 5; building operations, 55; general, 20. Total, 912.

INDUSTRIAL SAFETY

The inspection service is engaged continually in the work of preventing exposure of employees to the operating dangers of machinery. The changing of manufacturing processes and the introduction of new machines result in producing employment hazards in the work places. The health and well-being of men, women and children employed in the industrial establishments of the state are concerned with these changes, and regular inspectional supervision is maintained for their protection. Providing devices at point of operation to guard against accident occurrence is one of the prominent duties in this work. In this connection 1,963 orders, requiring compliance with the law to safeguard the employees, were complied with in the industrial establishments of the state during the year. These included requirements to control power transmission equipment and furnish emergency stopping devices; covering sprocket and inrunning gears to prevent contact with workmen; safeguarding set screws on revolving parts, vertical and horizontal transmission shafting, couplings and collars; belt and pulley equipment adjacent to passageways of working positions of operators. Shielding the eyes of employees and caring for hands and fingers exposed at the point of operation were prominent features in this activity. Special attention was given to circular saws, jointers, planers, matchers, moulders, and power punch and drop forge machinery. The work of installing interlocking devices on extractors in laundries; requiring improved safeguards on calender rolls and on embossing and hide-splitting machinery, and urging the use of two-hand trip devices on guillotine paper cutters, was continued. A gradual reduction in machinery accidents had taken place in recent years. Records taken from the department of industrial accidents indicate this fact.

Machinery Accidents by Manner of Occurrence

	1919	1930
Starting, stopping or operating machine	9,675	3,901
Adjusting machine, tool or work	1,758	589
Flying objects striking operator	3,285	658
Cleaning or oiling machine	1,298	498
Breaking of machine, tool or work	620	241
Repairing machine	223	124
All other	1,631	1,990
	<hr/> 18,490	<hr/> 8,001

In the year ending June 30, 1919 there were 1,750 cases of permanent partial disability injuries, or 2.5 per cent of all tabulatable injuries. This number dropped to 1,179 in the twelve months ending June 30, 1930, or 1.9 per cent of all tabulatable injuries.

Within this period there was a decrease in the number of eye injuries. The number dropped from 115 to 95. In 1930 there were two cases in which the employees who had previously lost the sight in one eye sustained injuries resulting in the loss of the sight of the other eye. The use of hand tools is the leading cause of injuries of this type. These were responsible for more than one-half of the eye injuries in the past eleven years.

Flying chips of metal, mineral or wood, splashing liquids, including molten metal and acids, and explosions of various types, continue to furnish fruitful sources for eye injuries. Accidents of this type occur from blows by belts, by emery grinding and polishing processes, flying particles from hand tools, from sandblasting, and flying objects of all kinds. Other causation of these injuries includes neglecting slight cuts which result in infection, exposure to excessive radiating heat, eye strain, resulting from improper or inadequate lighting, and lack of competent first aid, contribute materially to sources of eye injuries. The provisions of law to protect the eyesight of employees occupied prominent place in the work accomplished through inspection of industrial establishments. When the nature of the work or the machinery used permitted danger of injury to the eyes of employees, mechanical devices were required for their protection. Suitable goggles and transparent shields were among the means required for this purpose.

Numerous difficulties intervened to hamper this accident prevention work. The workmen failed to use protective devices, for they proved to be uncomfortable at times. The nature of the work frequently covers the lenses with dust, steam or perspiration. In emery wheel grinding, a glass guard securely fastened in a frame and properly attached to the mechanism is better protection in a case where several men use the wheel. Head shields or helmets were suggested for use in many cases where exposure of the eye to intense heat and light existed. These provisions were given cooperation in establishments where danger to the eyes prevailed in the course of employment. The industrial bulletin issued by the department and containing suggestions to employers and employees for the prevention of eye accidents was circulated among employees working in trades where eye injuries were numerous. The importance of taking care of the eyes and advice concerning proper first aid treatment in slight injuries were stressed in this publication. Through this medium attention was directed to the cause of eye strain, especially to employees working in clerical service and in drafting, sewing, tailoring, dressmaking, wood carving, typesetting, spinning and other general textile work, and in shoe and leather making, tool and cutlery working and metal grinding and polishing. Inspectors made special inquiry concerning the practice of cleaning machinery in factories, workshops, mechanical or mercantile establishments, and in some cases written objection was made against the practice of cleaning machinery in motion. Many concerns now post warnings to the employees against this custom. Such action was ordered in plants where it was found necessary. Cleaning or oiling machinery caused 1,298 injuries to employees in 1919, and accidents due to this cause dropped to 498 in 1930. In the application of the general safety rules and regulations to machinery, the progress made in preventing accidents is seen in these comparative tables:

Machine Accidents by Parts of Machine

Part of Machine	1919		1930	
	Number of cases	Per cent of total	Number of cases	Per cent of total
Point of operation	14,764	79.8	5,191	64.9
Belts	711	3.8	286	3.6
Gears	702	3.8	218	2.8
Set screws, keys and belts	49	.3	14	.2
Counterweights	48	.3	1	.1*
Cranks and eccentrics	23	.1	69	.8
Flywheels	20	.1	18	.2
All others	2,173	11.8	2,204	27.4
	18,490	100.0	8,001	100.0

*Less than one-tenth of one per cent.

The reduction of specific injuries is another result of regular supervision and frequent inspection of machinery. These accidents usually mean permanent loss of wage-earning capacity. Employees having this experience are frequently compelled to enter upon new employment in the industrial field. Most of these had served years of apprenticeship in their chosen trade, and through long experience became competent in operating intricate machinery.

Specific Injuries	1919 Number of Cases	Per Cent of Total	Types of Injuries	1930 Number of Cases	Per Cent of Total
One finger or thumb lost at or above the first joint	1,109	73.1	One finger or thumb	676	62.5
Two fingers on one hand	171	11.2	Two or more fingers, two or more phalanges	107	9.9
One eye	115	7.6	One eye	95	8.8
One hand	60	3.9	Right or major index finger, two phalanges	64	5.9
One toe	25	1.6	One toe	27	2.5
One foot	15	1.0	Right thumb, one phalange	26	2.4
Two toes	12	.8	Left hand or arm	19	1.8
Both feet	2	.1	Right hand or arm	19	1.8
One hand and one finger	2	.1	One foot or leg	14	1.3
One hand and one foot	1	.1	Right thumb, 2 phalanges	8	.7
Both eyes	1	.1	Two or more toes	7	.6
One finger on one hand, and one on the other	1	.1	One finger or thumb, both hands	4	.4
One finger on one hand, and two on the other	1	.1	Right thumb, 1 phalange and right index finger, 2 phalanges	4	.4
Two arms and two legs	1	.1	Right thumb and index finger, 2 phalanges	2	.2
One hand and one toe	1	.1	Right thumb, two phalanges and one or more fingers	2	.2
	1,517	100.0	Right thumb, one phalange and one or more fingers	2	.2
			Two or more fingers or thumbs, both hands	1	.1
			Both legs	1	.1
			One foot or leg and two or more toes	1	.1
			Major hand or arm and two toes	1	.1
				1,080	100.0

Building Operations

In the erection of buildings and their repair or alteration, regular inspection was maintained. Eight inspectors trained in the construction industry examined the working platforms and other staging equipment made available for mechanics engaged in these building projects. Rigging used in the business of house or structural outside painting and scaffolding was given supervision and this included interior decoration work involving occupational dangers to mechanics and workmen employed in this trade. Contractors engaged in these operations gave prompt compliance to orders issued by the department and cooperated with inspectors in suggestions made to maintain work places in safe condition. There was a total of 5,919 building inspections made.

During the year 1,164 building orders issued by the department to protect employees were complied with. Practically all of these provided for the control of employment conditions known from experience to be accident producing causes. This can be shown from records on file in the division. These include protection to employees from falling material by requiring adequate flooring, etc.; compliance with provisions to furnish working platforms with toeboards and guard rails; proper horizontal sections and diagonal bracing for built up scaffolding; staging maintained for the special purpose of preventing injury to workmen employed on a pitched roof; open stairways with rigid construction, including landings, and temporary treads securely fastened; handrails firmly attached and extending full length of the stairway, with adequate lighting facilities provided; safeguarding all openings in floors and providing barriers and railings for all spaces used for elevator hoisting purposes; requiring sufficient width of space on elevated runways for carrying material or using wheelbarrows; restricting the number of employees on two-fall staging or swinging scaffold and requiring equipment to make these safe; affording suitable enclosure of elevator machinery or hoisting apparatus to protect operator from falling material or inclement weather; furnishing full and complete insulation where workmen are liable to come in contact with wires used to transmit electricity of a dangerous voltage; and to convey smoke and gaseous matter to the outer air from heating apparatus for the drying of plaster or other materials.

The inspection of roofing operations in the repair of buildings was continued during the year. The use of devices to protect workmen in this dangerous employment was stressed. Concerns in this line of business willingly cooperated with the department in this connection. Special attention was given to individuals engaging temporarily in the business and employing workmen without compensation coverage on small jobs. Under these circumstances continual vigilance is necessary to enforce the regulations to keep work places safe. Building permits in cities and towns are followed closely by inspectors in an effort to prevent illegal employment of workmen in these operations and to secure compliance with the law.

There was compliance with 405 orders to meet the provisions of the rules in connection with the painting business. The total number of inspections of these operations was 1,088. These included operations of outside painting on buildings and other structures and the interior decoration of churches, theatres, schoolhouses, office buildings and other public buildings. Securing tie-lines to a stable part of the building or structure when the staging was supported by the gutter, providing life lines and belts to men employed 50 feet or more above the ground, and requiring the use of standard ledgers, diagonal stays, horizontal stays, planks, trestles, brackets and ropes came within the scope of this supervision. The building trades industry contributed 8,000 cases, or 13.0 per cent of all industrial accidents in Massachusetts for the year ending June 30, 1930; 72 of these were fatal, or 21.0 per cent of all fatal cases. There was one case of total disability, or 14.3 of all such cases; 103 permanent partial disability injuries occurred, or 8.7 per cent of all cases of this type. These latter cases included loss of fingers, hands, feet, toes or limbs or the sight of eyes.

Free Egress from Factory Buildings

Frequent inspection is necessary in old factory buildings to maintain egress as required by statute. In many of these structures small workshops are located and continual supervision is essential to provide safe exit for employees in case of fire or explosion. It was necessary to issue 94 orders in factories, workshops and manufacturing establishments where doors were locked, bolted or otherwise fastened in violation of law. Close attention was given to establishments where inflammable compounds or explosives were used that would obstruct or interfere with the egress of operatives in time of danger. In establishments used for the manufacture of fireworks and powder and in plants using volatile liquids capable of producing high concentration of dangerous fumes in the workroom, inspection was made each three months. Practical measures for the safety of the employees were maintained and cooperation given to orders issued by the department. This included places where gasoline, naphtha, petrol, benzine, ether, turpentine, methyl alcohol and carbon disulphide were used. These were concerned with dry cleaning processes, rubber compounding, engraving, commercial photography and employed as solvents in paints, dyes, oils, cements and varnishes.

Improvements made in some places to control the hazards included the installation of fireproof rooms and local exhaust equipment, providing safety containers, and substituting less inflammable and non-explosive compounds. In tenant factory buildings where barrels, boxes, refuse cans and containers were found on stair landings and in passageways, verbal orders given by the inspectors were promptly complied with. In warehouses where small workshops were found, careful attention was given to these conditions and cooperation maintained with municipal officials engaged in fire prevention work.

Lighting in Industrial Establishments

Lighting facilities in exits, passageways, stairways, hallways, elevator cars, wash-rooms, toilet rooms and other parts of industrial establishments were made to comply with the rules and regulations through orders issued by the department during the year. Lighting circuits for stairways and exits were examined and measurements made in the immediate area to determine accurate intensity of fine work requiring close discrimination in detail. Failure to keep lamps free from accumulated dust and dirt was found to be responsible in many cases for poor illumination. Changes were made in location of the light source, and proper adjustment of equipment to the

work processes took place when it appeared that eye fatigue existed among the employees.

Basement lighting was given prominent place in this work. Stairways poorly illuminated were found to be used by employees, and overcrowding the space utilized for storing merchandise made difficult the location of exits in some instances.

There was a total of 191 orders issued by the department to comply with the requirements of the lighting code, and prompt cooperation was given. These were concerned mainly with improvement of the existing equipment and the provisions as to the height and location of lamps, the use of shades and reflectors and other means to properly distribute the light in the workroom.

LABOR LAWS — WOMEN AND CHILDREN

In manufacturing and mercantile establishments and other places in which the statutes impose regulations upon the employment of women and minors, compliance was secured with 5,931 orders issued by the department to employers. These included telegraph offices and telephone exchanges, express and transportation offices, manicuring and hairdressing establishments, motion picture theatres, office buildings in which women elevator operators were employed, posting time notices, procuring and returning certificates, forbidding the employment of women and children at time other than stated on the printed notice and protecting children from working at dangerous trades.

Requirements concerning the forty-eight hour law were explained and instruction given with regard to proper posting of the notice, stating separately the hours of employment for each tour of duty, the amount of time allowed for meals and the procedure followed in making written report to the department of the day and hour of employment at time other than stated on the printed notice, and in the stopping of machinery for more than thirty minutes provided in the statute. Additional time notices were left with the employer in each establishment and he was advised to communicate with the department at any time when assistance was needed to post them properly.

Night inspection was made in certain types of establishments when the concerns were found employing women in shifts. The employees working in each tour of duty were interviewed and their hours of employment verified through examination of the lists on file. Much time was given to this type of work in hotels, restaurants and lunch rooms. Night employment of girls under twenty-one years of age in these places was given careful supervision. This was also done with roadside stands at which women and children were employed. In this connection it was necessary to visit these places on holidays and during the evening hours. Cooperation on the part of the general public in the enforcement of laws restricting the hours of labor for women and minors is shown in 474 complaints coming to the department from this source. In 157 cases violation of law was found. In some of these, court action was taken against the employer; in others prompt compliance with the law upon the issuance of orders by the department was obtained. Employment at time other than stated on the printed notice proved to be the most common form of violation. Most of these cases happened when men and women were employed together and payment for work was on the piece basis.

Child Labor

Regular supervision was given to the employment of children in foundries, workshops, manufacturing, mechanical and mercantile establishments. Careful inspection was made of certificates on file. The occupation of the child was examined and the work done compared with the certificate record, authorizing the specific nature of his employment, and the hours of labor checked up with the posted notice. The employment of children in chain stores, private bowling alleys, theatres, dance halls, miniature golf links, roadside stands and on trucks and other vehicles in the delivery of food products and other commodities was given attention by the inspection staff.

Conditions under which children were employed during the summer time at beach resorts and amusement parks received close and systematic supervision, and this work protected them from the harmful consequences of dangerous employment.

Child performers in public exhibitions continue to require the attention of the division. Traveling circus troupes and theatrical companies from other states come to Massachusetts and announce the fact that clever child performers will take part in their exhibitions. As acrobats, contortionists or musicians these children are advertised to have a leading place on the program. When this is found, managers are consulted, the requirements of law are made known to them and withdrawal of the children from the performance invariably takes place. As a means of preventing the illegal appearance of children in theatrical exhibitions, the practice of interviewing booking agencies was continued through the year.

The number of orders complied with in relation to procuring and returning certificates was 2,993. Of this number, 387 were for employment certificates for children between fourteen and sixteen years of age.

Seats for Women and Children

In the enforcement of these requirements it was necessary to issue 55 orders during the year to manufacturing, mechanical or mercantile establishments requiring that women and children be furnished with seats as provided by statute. Most of these were directed to department stores in which the working force was increased to meet the demands of the holiday trade or to handle the extra business caused by special sales. There was prompt adjustment in providing these seats upon notice being received from the department, and good cooperation was secured in these places of employment. Conferences were held occasionally with the management when difficulties were experienced in the enforcement of the statutes. These occurred when employers contended the work could not be done properly while the operator was sitting. Nearly always the objection was removed, and suitable seats were provided at once. In establishments where the work was done exclusively in a sitting position, special attention was given to seating facilities. Some of these were discovered to be unsuitable and others did not provide for good posture. Better equipment in this connection was secured when the department required improved accommodations.

Injuries to Employed Children

During the year ending June 30, 1930, 13 children under fourteen years of age were injured in their employment in street trades or at other work permitted under the statutes. Total number of children injured between fourteen and eighteen years of age was 2,724, or 104 more than for the previous year. This was 4.4 per cent of all tabulatable injuries. Classified by ages these are as follows:

<i>Age</i>	<i>Number</i>	<i>Boys</i>	<i>Girls</i>
14 and under	135	119	16
15	363	294	69
16	943	730	213
17	1,283	1,008	275

Permanent partial disability injuries in this group are as follows:

<i>Age</i>	<i>Number</i>	<i>Boys</i>	<i>Girls</i>
14	3	3	0
15	3	2	1
16	24	18	6
17	40	29	11

There was one fatal injury to a child under sixteen years of age — a boy fifteen years old, employed in the shipping department of a can manufacturing plant. He was found by his fellow employees wedged in between the floor of the elevator and the side of the shaft. It is not known how the accident happened.

Four children, all boys sixteen years of age, received fatal injuries:

One boy, serving as an apprentice to a cabinet maker, fell into the elevator well, receiving multiple fractures which caused his death.

Another fatal elevator accident occurred when a boy employed as a cutter in a rubber factory attempted to board the elevator as it was ascending. He fell into the well, receiving a fractured skull.

A messenger boy sat on a motorcycle and raced the engine. After the machine started, he did not know how to stop it, and dashed into a tree.

A helper in a garage was changing a tire when the handle of the tool broke, striking him on the head, causing concussion of the brain.

Permanent Partial Injuries to Children Fourteen and Fifteen Years

Six children in the fourteen to fifteen year group received permanent partial disability injuries: five boys and one girl. These injuries, classified by industry, follow:

<i>Industry</i>	<i>Number</i>	<i>Injury</i>	<i>Number</i>
Mercantile	2	Classified by injury:	
Wire mills	1	Loss of 1 phalange, 1 finger	2
Pottery	1	Loss of two phalanges, 1 finger	2
Tannery	1	Loss of two toes	1
Food products	1	Loss of use of 1 finger	1
	<hr/> 6		<hr/> 6

A boy fourteen years old, employed as a helper in a wire mill put his hand under the cutter which another boy was oiling, and had the index finger of the right hand amputated at the second joint.

Another fourteen year old boy was getting a case of canned goods from a pile in the cellar, when a cement block dropped on the fourth finger of his right hand cutting off the distal phalange.

Employed as a stripper in a tannery, a fourteen year old boy caught his foot between the elevator and the wall as he was bringing skins from the loft to the finishing room. He lost two toes.

As a fifteen year old boy was cutting fish, the knife slipped, severing the tendons of the right middle finger, causing the loss of its use.

Another boy of the same age employed as helper in a pottery, attempted to run a machine while the regular operator was absent. The first finger of the left hand was amputated at the first joint.

A girl fifteen years of age employed in a factory where macaroni is made, caught her left index finger in a machine which she was cleaning while it was in motion, losing her finger at the second joint.

Permanent Partial Injuries to Children Sixteen and Seventeen Years

There were 64 permanent partial disability injuries to children in this group: 47 boys and 17 girls.

Classified by industry, these are as follows:

Textile	17	Contractor	2
Shoe and leather	7	Rubber	2
Foundry	6	Metal trades	2
Woodworking	6	Optical goods	2
Mercantile	5	Games manufacturing	1
Ice dealers	3	Power plant	1
Paper	3	Radio manufacturing	1
Printing	2	Club	1
Laboratory	2	Junk dealer	1
			<hr/> 64

Classified by injury:

Loss of 1 phalange, 1 finger	22	Loss of 2 phalanges, 3 fingers	2
Loss of 2 phalanges, 1 finger	14	Loss of 3 fingers	2
Loss of 1 finger	10	Loss of 2 phalanges, 4 fingers	1
Loss of 1 phalange, 2 fingers	3	Loss of 4 fingers	1
Loss of 2 phalanges, 2 fingers	1	Loss of 1 hand	2
Loss of 2 fingers	2	Loss of 1 eye or loss of vision	3
Loss of 1 phalange, 3 fingers	1		<hr/> 64

Outstanding in the degree of severity in these cases were six:

In one, a girl seventeen years of age was employed in a leather finishing establishment in assisting to operate an embossing machine. Her right hand was caught in the machine and so badly mangled that it was amputated at the wrist.

Another young woman of the same age employed as a press operator, sustained an injury resulting in the amputation at the second joint of all the fingers of her left hand.

In operating a cutting machine used in the manufacture of toilet goods, a boy sixteen years of age suffered the traumatic amputation of the index, middle and ring fingers of the left hand.

Another boy the same age, in handling the die used in the cutting of leather board, accidentally stepped on the treadle of the machine, releasing its head, which descended upon his hand placed on the top of the steel die, amputating the second, third and fourth fingers of the left hand at the second joint.

In cleaning the frame of a speeder in a textile mill, a girl seventeen years of age accidentally placed her fingers between the inrunning gears. The right little finger was amputated at the terminal phalange, the ring finger at the second phalange and the middle finger between the first and second joints.

Pushing candy stock into the machine with his fingers, a boy sixteen years of age sustained traumatic amputation of the middle and ring fingers of the right hand.

In the 64 establishments in which specific injuries occurred to children between fourteen and eighteen years of age, 39 occurred in plants where first aid rooms were maintained. First aid treatment was available for the injured employees as required by the rules and regulations for this purpose. In other establishments medical chests were provided and supplies for first aid treatment were accessible to the employee. Records on file indicate that in the plants where the accidents happened regular inspections had taken place. General compliance with labor laws was the rule in these work places.

PREVENTION OF WORK INJURIES

The work of safeguarding employees from exposure to occupational dangers was continued during the year. Supervision of hazardous trades was stressed. When unguarded machinery was discovered, the statutory provisions to protect workmen from accident forming causes were invoked. Compliance with the regulations requiring that permanent passageways and gangways be kept free from projecting nails, tools and obstructions was secured. Stair treads were required to be in good repair and equipped with hand rails of metal or wood free from splinters or other hazards, and material to prevent slipping on the floor was provided in cooperation with orders issued by the department. Work injuries were investigated, and this provided opportunity to determine causation of accident. This system proved an excellent means for checking up the inspection work in the plant. In this experience expert knowledge of prevention work is required, and dangerous zones in industry become well-known to the inspectors. Through this practice the safeguarding of machinery at the point of operation is improved. Opportunity is presented to establish cooperation by workmen and employer with this division in the work of preventing accidents.

Investigation was made in 1,552 cases during the year. Typical accidents were selected for investigation pursuant to the established policy in this connection. This included fatal and permanently disabling injuries, diseases of occupation, building trade accidents and injuries to minors in cases where employment of children at processes were forbidden by statute. This system afforded careful examination of factory conditions and the construction of machinery. Plant officials and employees were interviewed in relation to the causes of accidents. Employment certificates were examined in the case of child injuries, and the work promised at the time of hiring him was compared with his occupation when injured. This was to determine if the employment was authorized by law. Reports were made of these cases, including statement of the work done in the establishment to maintain safe

conditions in employment, and a description of the machinery, floors, passageways and stairways was made part of the record. This practice keeps the division well informed on hazardous places of employment and indicates what establishments may require more frequent inspection.

Accidents were investigated in 1,121 industrial establishments and 169 buildings in the course of alteration or erection. Those occurring in industrial establishments included 999 adults and 122 minors under eighteen years of age.

Analysis of these cases indicates the occupations in which these injuries were sustained:

In foundries: Moulders, welders, machine operators, grinders and lathe workers.

In the rubber trade: Speeder tenders, cutters, spreaders and vulcanizers.

In the paper trade: Backtenders, calender operators, stampers, cutters and folders.

In shoe factories: Cutters, stitchers, fitters, skivers and dinkers.

In tanneries: Beamhouse workers, shavers and embossers.

In laundries: Ironers, feeders and mangle operators.

Woodworkers: Saw operators, carpenters, cutters and jointers.

In metal trades: Press operators, tool stampers and rollers.

Printing and publishing: Pressman, cutters and stereotypers.

In textile mills: Weavers, winders, card operators, speeder tenders, pickers, warpers and loomfixers.

General Accidents

Abrasions, bruises and contusions	260	Dislocations	1
Amputations and loss of use of	366	Electric shocks	8
Burns and scalds	36	Explosions	5
Concussions	4	Fractures and breaks	138
Cuts, punctures and lacerations	169	Internal	5
Crushed to death	14	Sprains and strains	16

1,022

There were 93 fatal accidents investigated, of which 36 were due to fractures and breaks; 14 persons were crushed to death; seven died as the result of electric shocks; eight were due to burns and scalds; two to internal injuries; four to sprains and strains; four to amputations; four persons were killed in explosions; seven to lacerations; six to abrasions, bruises and contusions; and one death was due to concussion of the brain. Three of the fatal accidents were to minors.

A boy fifteen years of age was employed by a tire and battery service company to open the gas station every morning. With two other boys he was siphoning gasoline from a pail, when the gasoline hit the open flame of a small coal stove, causing an explosion. This boy died from burns.

A boy fourteen years of age was helping around the yard of his father's granite quarry, when a guy rope on a hoist broke and the boom came down on the boy's head.

A girl sixteen years of age was operating a radio base-filling machine. Alongside of this machine was a can holding alcohol. This alcohol was used in the process of the radio base making. In some manner the girl tipped over the can of alcohol, and it splashed over her clothes and on the machine. Later, when she turned the machine switch, it ignited the alcohol and her clothing caught fire. She died from the burns.

Accidents occurred in the following establishments: Textile, 222; shoe manufacturing, 82; tanneries, 26; metal trades, 87; foundries, 83; woodworking, 29; paper trades, 87; gas and electric, 42; mercantile, 44; manufacturing food products, 42; garment making, 25; printing, 22; rubber, 36; chemical, 24; clay and glass and stone products, 20; transportation, 11; laundries, 12; coal and wood, 5; garage, 12; radio and musical instruments, 14; celluloid products, 12; athletic goods, 9; miscellaneous, 76.

Of these accidents 719 were due to contact with machinery; 139 to other conditions about the factory; 10 to slippery floors.

Safeguards were provided in 813 cases, and in 109 plants there were safety committees and engineers. First aid rooms were maintained in 440 places, and in 291 there were medical chests provided. Additional care for employees by physicians or in hospitals was available in 111 of these.

NON-MACHINERY ACCIDENTS

These were investigated when it appeared useful to do so. Most of them are traceable to simple circumstances and occur frequently through failure to exercise due care in the place of employment. Stumbling over obstruction in passageways, stepping on nails, tripping over boards of floor, falling downstairs, and lifting heavy materials are prominent incidents in work injuries of this type. Extended periods of incapacity for work because of back injuries and inguinal hernia requiring surgical operations and hospital treatment occurred in some of these cases.

The handling of objects continues to be the leading cause of industrial injuries in this state. This is shown in the following data taken from table 10 of the annual report of the department of industrial accidents for the year ending June 30, 1930:

Distribution of Causes, by per cents

CAUSES OF INJURY	Totals	Deaths	Permanent Total Disabilities	Permanent Partial Disabilities	Temporary Total Disabilities
Handling of objects	30.9	7.0	—	13.9	31.4
Falls of persons	16.2	23.2	28.6	3.7	16.4
Machinery	13.0	15.4	28.6	61.7	12.0
Stepping on or striking against objects	8.0	1.7	14.3	1.1	8.2
Hand tools	7.8	1.2	14.3	6.9	7.9
Vehicles	7.0	21.5	—	3.5	7.0
Miscellaneous causes	5.4	5.2	—	2.4	5.4
Falling objects, not being handled	5.1	4.4	—	2.4	5.1
Explosions, electricity, etc.	4.3	15.4	14.3	2.1	4.3
Occupational diseases	1.8	3.8	—	2.3	1.8
Animals5	1.2	—	.3	.5

The highest number of accidents occurred in the "handling of objects", with 30.9 per cent and these were responsible for 7.0 per cent of the fatal accidents and 13.9 per cent of the permanent partial disability cases.

"Falls of persons" caused 16.2 per cent of all tabulatable injuries, 23.2 per cent of the fatalities, 28.6 per cent of the permanent total disabilities, and 3.7 per cent of the permanent partial disabilities.

Handling of Objects: Accidents in this group included being caught between two objects; falling from trucks loaded with materials; helping to place articles on vehicles for transportation; objects dropped down by a fellow workman; straining in handling merchandise, and violent contact with sharp and rough objects. In this connection employees were urged to avoid unsafe practices in handling tools, to keep them in good repair, and in the proper storing of material and merchandise.

Falls of Persons: Accidents of this type are mainly preventable. Many occur through slipping on the floor, and serious injuries are inflicted upon the employees in the industrial establishments of the commonwealth. Causation factors in this experience were found to be oil soaked spots beneath and around machines; nails projecting above the floor; passageways crowded with obstacles over which workmen stumble and fall, and drippings from shaft hangers and leaking humidifiers, are sources of painful injuries to employees. Special attention was given to these problems in the regular inspection of industrial establishments. Good cooperation was received in this connection from plant management and safety committees, and orders issued by the department were promptly complied.

Eye Injuries

Investigation was made of 99 eye injuries. These included 95 men and four women. Classified by industry, they are as follows:

Industry	No.	Industry	No.
Foundries	24	Granite	2
Metal trades	4	Electric and electrical	4

Textile	10	Rubber	1
Woodworking	5	Mercantile	1
Garage	8	Construction	4
Shoe and leather establishments. .	16	Chemical	4
Paper	1	All others	15
			<hr/>
			99

By nature of injury, they are classified as follows:

Foreign bodies	40	Burns	11
Cuts, punctures, lacerations . .	8	Loss of eye	3
Irritations	30	Loss of sight	6
Bruises	1		<hr/>
			99

Causation of these injuries is classified as follows: Irritation from acid fumes, chips flying from metal and emery wheels, irritation from glare of torches, punctures by wires and needles, burns from acids and caustic solutions.

Typical illustrations of accidents in eye injuries are these:

A man was doing side grinding on a small emery wheel, when it exploded and a piece of steel struck his goggles, causing a piece of glass to pierce his eye resulting in the loss of the eye.

A sandblaster was chipping burrs of iron parts with a chisel and hammer, and in some way a chip flew into his eye causing him to lose the sight of it.

A machinist was fixing a machine, using a 40-watt bulb which exploded. The glass struck him in the eye causing loss of vision.

A painter was spraying the outside of a boat in a dry dock with a spray gun, from a 10-gallon tank. In refilling the tank it appears the cap was not screwed on tightly, for when the air was turned on to spray the material, it blew up and caused the loss of the eye.

A man lost the vision of one eye when a piece of metal flew up and struck him while he was breaking up old machinery with a sledge hammer.

Accidents in the Building Trades, 1931

There were 169 accidents investigated in the building trades, of which 28 were fatal. Classified by injury, they are as follows:

Abrasions, bruises and contusions .	28	Internal	6
Amputations	17	Burns	5
Concussion	6	Electrocution	1
Crushed to death	4	Explosion	1
Cuts, punctures and lacerations . .	20	Sprains and strains	14
Fractures	67		<hr/>
			169

Classification of these injuries by employment is as follows:

Building construction	103	Alterations, repairing	6
Painting	40	All others	5
Roofing	15		<hr/>
			169

Causation of these injuries is as follows:

Lost balance	59	Struck by hoisting derrick	7
Staging collapsed	21	Broken gutters	10
Struck by falling objects	13	Explosions	7
Broken ladders	11	Contact with live wires	2
Falls through openings	5	All others	25
Faulty scaffolds	9		<hr/>
			169

INDUSTRIAL HEALTH

In the inspection of industrial establishments prominent attention was given to conditions menacing the health of employees. Dangerous fumes and irritant dusts arising in processes involving the use of industrial poisons were examined carefully. Cooperation of the management was secured to safeguard against these dangers in

plants where such conditions prevail. During the year 262 orders were issued by the department, and these involved principally the removal of gases, fumes and dust from the workroom, and prompt compliance followed. The practice of holding tests at the most appropriate time to determine accurately the presence of dust in the area surrounding lead pots, casting machines, soldering benches and in other processes of industry, was continued. Sanitary conditions in manufacturing and mechanical establishments were improved. Employers were required to conform with the provisions contained in the rules and regulations for washing and toilet facilities in industrial establishments.

Mechanical devices required at the point of operation in the generation of dusts, fumes and gases were carefully examined. The use of masks, rubber gloves, suitable containers and respirators and the providing of goggles for the protection of eyes were required in many cases to safeguard against the dangers to health. Inspection was given exhaust systems used in granite-cutting establishments. The problem of dust removal in work done by pneumatically driven chisels in ornamental designing and inscription work on monuments was given close attention. During the year a new system consisting of eight units was installed for this purpose in the largest granite producing center of the state. Each unit was provided with a flexible rubber hose about $3\frac{1}{2}$ inches in diameter and at the end of the hose, a distance of 12 inches, is a metal duct, at the end of which is a flaring hood 10 inches long by 4 inches wide. This hose is capable of being adjusted by iron bars on the side so that they may be placed on the granite where the men are working. The units are constructed in pairs and located about 12 feet apart, which allows the men to work on eight different blocks of granite and do the finishing, carving and lettering, and the system of exhaust can be adjusted directly at the point of operation, controlling the danger at its origin. The extreme end of the main line duct of the equipment is about 7 inches in diameter and at the fan it measures about 12 inches. The fan is 30 inches across its surface and it is operated by a $7\frac{1}{2}$ h.p. motor that is directly connected.

This system appears to be practical in operation and reasonable in regard to the expense involved. It is accomplishing good results in protecting workmen who are exposed to the inhalation of silica dust, and it is expected that similar installations will be made in workshops where this type of employment prevails.

Frequent inspection was given places engaged in the manufacture of storage batteries. In practically all of these places physical examination is given the employees at stated intervals by a plant physician. Shower baths and good washing facilities are provided. Employees were urged by the inspectors to wear respirators when weighing lead oxides, and to keep the room free of dust by using the vacuum process available for this purpose. Orders were issued in some of these places to provide exhaust blower for pasting tables, lead crucibles, plate-casting moulds and paste mixing churns. Employment conditions involving danger from intense heat, injuries from explosion and flying sparks, and the escape of carbon monoxide gas in garage and workshop were given close inspectional supervision.

Prompt application of first aid treatment in case of lacerations and burns was advised, and the importance of using respirators and goggles was stressed among the employees. Dangers from exposure to the inhalation of irritant dusts in foundries were brought to the attention of the management, and employers and workmen were urged to exercise care in this connection.

To improve sanitary conditions in relation to toilets and washing facilities, 1,432 orders were issued in manufacturing and mechanical establishments employing large numbers of both sexes. Some of these orders were issued for the purpose of maintaining adequate facilities, based on the maximum number of persons of either sex employed at one time, accessible to persons for whose use they were designed, and located within three hundred feet from the place of employment. Others applied to establishments in which the ventilation was not provided directly to the outside or by means of a window, skylight or other suitable opening; entrance to the water-closet compartment opening directly into the room and not provided with a screen; enclosing walls not substantially constructed to maintain privacy; floors not constructed of material impervious to moisture and compartments for women inside of toilet rooms not provided with proper doors or furnished with suitable fasteners. Maintaining provisions for washing facilities was also included; providing the proper

number of sinks and other appliances, based upon the maximum number of persons entitled to use the same at any one time, and requiring adequate lighting facilities and the keeping of floors around sinks clean and free from slipping dangers. Where undue exposure to poisonous substances or liquids existed, clean, running, hot and cold water was required.

CHILD LABOR IN TOBACCO FIELDS

During the summer season investigation was made of the employment of children in the tobacco fields of the Connecticut Valley. This included a conference with representatives of the management in charge of the farms, visits to the homes of some of the employed children and interviews with physicians and other professional groups and calls on different public agencies.

Through the courtesy of the authorities at the Massachusetts State College in Amherst, a conference was held in the college on July 22, 1931. At this meeting representatives covering 95% of the shade-grown tobacco farms were present and described conditions on their farms with special reference to the employment of children. Tobacco fields are cultivated under their direction in West Deerfield, Hatfield, Westfield, Northampton, Agawam, Southwick, Southhampton, Easthampton, Feeding Hills, Chicopee Falls, Whately and Deerfield. These are conducted by corporations outside of Massachusetts with heavy investments in large barns and modern farm machinery.

At the conference a report of the Special Commission on Child Welfare, House Document No. 1200 of the year 1930, and the recommendations submitted to the Legislature by the Commission in connection with the employment of children in industrialized agriculture, were freely discussed by the group present. General sentiment was against the extension of factory laws to cover this type of employment on the ground that the work in the fields was of a temporary character and was restricted usually to five or six weeks in the harvesting season. Their general policy was to employ children thirteen years and over, but that exceptions were made in the case of younger children when their parents worked on the plantation. The usual work day was limited to nine hours, but weather conditions frequently caused a shorter period of employment, on some days not more than four or five hours.

Some statements were received, alleging that harmful conditions prevailed for children in the fields, but upon investigation it was found that these were generally exaggerated. Physicians interviewed in different sections of the valley stated that they found nothing in their practice to indicate bad physical effects from the employment of these children. In homes visited, parents manifested solicitude in the welfare of their children and stated that on most of the farms supervision was maintained equally as good as that which prevailed on the public playground. There was assurance of willing co-operation from the various concerns in complying with existing statutory provisions under the jurisdiction of the Department of Labor and Industries.

The employers claimed that much improvement had been made in recent years in the employing of children in the tobacco fields. Careful attention is now given to providing better toilet facilities and furnishing pure drinking water. It was said that the old system of furnishing private board and lodging for minors employed in the harvesting of the tobacco crop had been abandoned. Children did not remain over night on the farms. Automobile trucks are now universally provided for the transportation of children from the town of their residence to places where such employment is available. Under this system employees are on time in the morning and may return home after having worked the full day. Difficulties arising in the coming together of large numbers of children in the tobacco fields were acknowledged, but it was contended that a satisfactory degree of protection was maintained. Assurance was given by the growers that they would comply with the requirements of the Massachusetts laws and cooperate with the Department of Labor and Industries in this connection.

In the examination of employment conditions, four inspectors visited the leading tobacco farms in the Connecticut Valley where substantial groups of children were employed. On some of these plantations it was found that no child under sixteen

years of age was employed, while only a few children under fourteen years of age were at work on others. Portable outdoor water-closets were provided for each sex, most of them of temporary construction, but made available for use during the short harvesting season. Fresh drinking water was furnished each day and on some farms this was taken from a portable barrel with a simple bubbler arrangement, replacing the common water pail and drinking cup.

Nearly all of the large growers were cultivating smaller tobacco crops than in previous years and fewer women and children were employed. It was estimated that less than one-half of the normal crop was raised during the season of 1931. Girls working in the sewing sheds were found to average approximately sixteen years of age, with a large number of older girls and married women in each group. No girls under thirteen years of age were employed. In the tobacco farms boys sixteen and eighteen years of age now work hanging tobacco leaves in the rafters. Because of the hazardous nature of this work, those of a younger age are not permitted to engage in it. Improvements were made on existing equipment in compliance with orders issued by the Department, and the attitude of the growers in these matters indicated willing cooperation. No abuses of children were found to exist, and on the different farms it was apparent that interest was manifested in maintaining satisfactory conditions in employment.

SANITARY SURVEY OF LAUNDRIES

For this purpose there was a total of 342 laundries located in various parts of the commonwealth included in this study. In these places 2,954 men and 1,927 women were employed, with 23 boys and 46 girls under eighteen years of age. In 189 of these the building was of old construction, while 153 were classified as modern. Adequate lighting and ventilation were provided in nearly all of them.

In maintaining the workroom in clean condition, 122 made a daily practice of sweeping and washing floors and cleaning walls. In 138 this procedure was followed weekly; 57 semi-weekly, while in 25 it was done irregularly.

Special attention was given to washing and toilet facilities. In 219 establishments there were good washing facilities; in 117 fair; in 6 failure to comply with the law was found. In regard to toilet facilities, 150 establishments were found in excellent shape and 115 in fair condition; 67 needed cleaning and 10 were found in which there was violation of the rules and regulations.

The condition of floors and the existence of slipping hazards received special attention because of the numerous sacro-iliac injuries arising out of and in the course of employment in this industry. In 218 plants the floors were found to be free from hazards to the employees; 112 appeared to be in fair condition; 12 were pronounced poor.

In connection with this survey inquiry was made in each plant as to the prevalence of industrial diseases. It was found during the investigation that twelve instances of this kind were known to prevail, and all of them were dermatitis.

Elderly women frequently complained of flat feet and varicose veins. Eczema and skin eruptions were noted occasionally and found to be the result of contact with chemicals. The alternating changes from high to low temperature were responsible in some cases for bronchitis and headaches. Operators of gas heated irons complained occasionally of headache from the inhalations of escaping carbon monoxide. The use of electric irons is now causing this condition to gradually disappear. Employees and management were advised of the danger in connection with the handling of chemicals. The need of adequate first aid treatment was explained. Employees were directed to give proper care to burns from hot irons and were warned to avoid the practice of putting hands and arms between the steam-heated rollers in an effort to untangle towels and other articles in the process of being ironed.

Outlets for water from the concrete floors sloping towards the drain were found in some instances clogged with dirt from the washing machines. This was noticeable where neglect and disorder in the workroom prevailed.

Cloak room accommodations were found inadequate in some of the small laundries.

Inquiry revealed the fact, however, that personal hygiene is now more generally practiced by the employees and the rules of cleanliness scrupulously observed in many establishments. Employees are advised to keep the hands perfectly clean,

particularly before eating, and to avoid the practice of placing the fingers in the mouth or on the face or scalp.

In this industry health standards have improved in recent years and model laundries have been constructed. Air agitators and roof vents are employed to improve the ventilation. Modern air conditioning systems have been introduced in some of these places. Laundry owners are well organized, and through a central bureau system convey important technical information to each concern. This has accomplished much to improve the laundry processes and eliminate dangers of occupation. However, the combination of low ceilings and poor ventilation, with overcrowding of machinery in the workroom, may be found in some establishments. This is due chiefly to high rentals and restricted floor space in certain localities. The investigation showed that progressive laundry managers continually seek to increase efficiency through reducing causes of physical and mental fatigue. Some of these provide ten minute rest periods in the morning and afternoon for the employees and are quick to install safety devices produced by the makers of machinery. In their establishments will be found flat work ironers with guards in front of the feed rolls; washers and tumblers equipped with locking devices to prevent the inner cylinder from moving during the loading and unloading of the machine; pulleys, belts, gears, set screws, sprockets, chains, shafting, clutches and flywheels securely guarded. Washing machine work is usually done by men, but in a few instances women were employed in tending extractors. Interlocking devices are gradually being installed on these machines, and through locating them on a strong and secure foundation the rocking and speeding of the basket is avoided. Washing, oiling, cleaning, adjusting and repairing machines are done by experienced men. Starching and drying machines, ironers and drying tumblers were found well provided with devices to protect employees from injury.

In the wet wash plants the work is concentrated on the first three days of the week, and employees are required to work at an intensive and high rate of speed.

Inquiry was instituted among sorters and markers in relation to the possible transmission of tuberculosis or acute infectious diseases which might be traced to the handling of soiled linen, but without securing information of definite value.

There was a total of 479 orders issued by the department as a result of this investigation. These have met with prompt compliance and in a spirit of cooperation with the department; 153 concerned the prevention of work accidents. These included 103 orders to guard belts, pulleys, gears, set screws and extractors; 45 required keeping the laundry clean and maintaining adequate passageways; 5 to repair floors. To counteract the results from infected injuries arising out of burns, cuts, lacerations and bruises, in 125 of these places orders were issued to improve, replenish or install the medical chest or first aid room.

Summary of orders issued in the survey is given as follows:

Employment certificate	2	Educational certificate	33
Seats for women and minors	7	Lighting	7
Toilet and washing facilities	123	Ventilation	10
Medical chest or room	125	Common towel and cup	10
Unguarded openings	6	Communication with engine room	2
Safeguarding machinery	153	Posting shift notices	1

479

VENTILATION

Improvement was made in the ventilation conditions of 194 industrial establishments through compliance with orders issued for this purpose. Special apparatus was installed in many cases to remove fumes to the outside air. This was necessary in garages where the dangers of discharging carbon monoxide gas into the workroom existed. Duct openings and types of hoods were examined closely and tests made to determine the efficiency of ventilating systems. Laundries, hotel kitchens and other places where steam and vapor made conditions uncomfortable for the employees were included in this work. In newspaper and printing establishments stereotype kettles and matrix dryers were inspected regularly. Correction was made in cases where defective exhaust pipes were found. Metal plating concerns,

woodworking establishments, shoe factories, foundries, and firms engaged in the manufacture of rubber products, each had its problems requiring correction in the equipment used to prevent dangers of inhalation. Good cooperation was secured in complying with the law in these places.

FIRST AID TREATMENT

Efficient first aid treatment in caring for slight occupational injuries is of paramount importance. Bad infections result from neglect of early treatment of burns, lacerations, punctures and bruises sustained in the course of employment. The accident experience of the industrial establishments of the commonwealth is proof for this statement. In 1929 there were 5,845 injuries of this type, or 9.7 per cent of the tabulatable injuries occurring in that year; in 1930 there was a total of 5,909 injuries of this type, constituting 9.6 per cent of the total tabulatable injuries. One out of every ten tabulatable injuries resulted in an infection in 1930 and in 1929 as compared with one out of every eleven in 1928. The department of industrial accidents in its Table No. 9 for the years ending June 30, in 1929 and 1930, presented herewith indicates the experience with infections ensuing from industrial injuries:

<i>Infection by Nature of Injury and Extent of Disability</i>				
1929				
Nature of Injury	Totals	Deaths	Permanent partial disabilities	Temporary total disabilities
Abrasions, bruises, contusions	945	10	1	934
Burns and scalds	138	2	—	136
Cuts, punctures, lacerations	3,478	11	6	3,461
Fractures	7	2	1	4
Sprains and strains	8	—	—	8
All other	1,224	3	1	1,220
Amputations, loss of use	35	—	35	—
Occupational	10	—	—	10
	5,845	28	44	5,773
1930				
Cuts, punctures, lacerations	3,479	25	1	3,453
All other	1,324	1	2	1,321
Abrasions, bruises, contusions	907	5	—	902
Burns and scalds	158	1	—	157
Amputations, loss of use	24	—	24	—
Fractures	9	—	1	8
Sprains and strains	7	1	—	6
Dislocations	1	—	—	1
	5,909	33	28	5,848

There were 870 orders issued by the department during the year requiring compliance with law in relation to first aid treatment of persons injured or taken ill upon the premises. There was good cooperation in complying with these orders, and employees were urged to take advantage of the available service in this connection. Requiring the necessary medicines, instruments and appliances and the installation of first aid or emergency rooms in manufacturing and mechanical establishments where one hundred or more persons are employed was a prominent feature of this work.

Close attention was given to the problem of having first aid treatment of injuries administered under competent direction. In this connection instruction was given by physicians to employees selected to do this work, while lecture courses in hospitals and under the auspices of health organizations were provided for those who would acquire adequate skill and experience. Keeping accurate records in first aid rooms and stimulating interest in the prevention of infectious injuries was stressed in the inspection of individual establishments. Representatives of the management readily

cooperated with safety committees in certain establishments in urging employees to have slight injuries promptly cared for. The proper treatment of punctures, burns, cuts and lacerations was stressed and facts concerning the increase in injuries of this type were made known to all concerned.

OCCUPATIONAL DISEASES

There was a total of 447 of these cases investigated during the year. These included 375 men and 72 women; eleven of these cases were fatal — all men. In compliance with the requirements of section 11, chapter 149 of the General Laws, statements were secured from the attending physician when, in his opinion, the patient was suffering from an ailment or disease contracted as a result of the nature, circumstance or condition in his employment. In each of these an examination of the work place and exposure of the employee was made, and reports of the cases were carefully supervised by physicians on the inspection staff.

*Cases of Industrial Illness Investigated During Year Ending
November 30, 1931, by Disease, Age and Sex*

Illness	Total Cases	15-18		18-20		21-30		31-40		41-50		51-60		61+		Total		Fatal	
		M. F.		M. F.		M. F.		M. F.		M. F.		M. F.		M. F.		M. F.		M. F.	
Dermatitis	284	7	6	14	7	63	19	55	8	47	19	26	2	11	—	223	61	—	—
Gas and fume poisoning	63	1	—	3	2	17	5	11	1	13	—	4	—	6	—	55	8	4	—
Lead poisoning	36	—	—	—	—	12	—	12	—	10	—	2	—	—	—	36	—	—	—
Pneumoconiosis	15	—	—	—	—	3	—	2	—	6	—	3	—	1	—	15	—	3	—
Anthrax	12	—	—	1	—	3	1	4	—	—	—	1	—	—	—	11	1	—	—
Silicosis	10	—	—	—	—	3	—	—	—	5	—	1	—	1	—	10	—	1	—
Other dust poisoning	6	—	—	—	—	2	—	1	1	1	—	1	—	—	—	5	1	—	—
Tuberculosis	5	—	—	1	—	1	—	1	—	2	—	—	—	—	—	5	—	2	—
Chrome poisoning	5	—	—	—	—	1	—	2	—	2	—	—	—	—	—	5	—	—	—
Benzol poisoning	4	—	—	—	2	—	—	—	—	1	—	1	—	—	—	4	—	1	—
All others	7	—	—	—	—	1	1	1	—	2	—	1	—	1	—	6	1	—	—
Totals	447	8	6	19	9	108	26	89	10	91	19	40	2	20	—	375	72	11	—

Employees worked at the following occupations:

Tanneries: Beamhouse workers, leather handlers, shavers, wet wheelers, seasoners.

Textile mills: Scourers, twistors, spare hands, backtenders, dyers, printers and color mixers.

Foundries: Dipping castings, tending furnaces, pouring molten metal, drawing wire.

Shoemaking: Treers, strippers, coverers, stitchers, lasters, assemblers, dressers, finishers.

Rubber: Calender operator, cement feeders, mill operators, spreaders, mixers.

The causation of these diseases was traced to the following:

Tanneries: Dehairing skins, handling chrome-soaked skins, spraying leather, working around beamhouses.

Textile mills: Mixing dye solutions, cleaning color cans, handling oily waste, handling printed cloth.

Foundries: Putting stock in strong alkali solution, making battery plates, shoveling lead ore, handling potash and nickel solutions.

Metal trades: Handling metal, grinding copper and steel, pouring molten metal, dipping metal parts in strong solutions.

Shoemaking: Handling dressings for shoes, inhaling fumes from cleansing agents.

Rubber: Washing boots with crepe naptha cement, handling coated material and raw tires before they are cured.

To prevent the recurrence of similar diseases of occupation, improvement was made in the exhaust systems in many cases. In some of these better ventilation was provided in the workroom and more suitable washing facilities made available.

Other means included adequate hot and cold water, with shower baths, lockers, medical chests, first aid rooms, respirators, goggles, masks, wooden shoes, rubber aprons, rubber gloves and oilskin sleeves, canvas shoes and aprons and suitable places for eating food.

Dermatitis

There was a total of 284 cases investigated. The nature of injury by industry, age and sex is given herewith in statistical form.

*Dermatitis Cases Investigated During Year Ending November 30, 1931,
by Industry, Age and Sex*

Industry	Total Cases	15-18 M. F.	18-20 M. F.	21-30 M. F.	31-40 M. F.	41-50 M. F.	51-60 M. F.	61+ M. F.	Total M. F.
Textile	67	1 -	4 1	8 3	13 3	14 1	11 -	8 -	59 8
Shoe manufacturing	63	3 1	1 3	9 8	12 3	5 15	3 -	- -	33 30
Tannery	36	2 1	2 -	11 2	6 1	6 1	4 -	- -	31 5
Rubber	22	- 2	1 -	6 1	5 -	4 -	2 1	- -	18 4
Paper	12	1 1	2 -	3 1	- -	2 1	- -	1 -	9 3
Metal trades	11	- 1	2 1	2 1	2 -	2 -	- -	- -	8 3
Chemical	10	- -	1 -	2 1	2 -	4 -	2 -	- -	9 1
Contractors and builders	10	- -	- -	- -	- -	- -	- -	10 -	- -
Foundry	9	- -	- 2	3 -	3 -	1 -	- -	- -	7 2
Food products	7	- -	1 -	5 1	- -	- -	- -	- -	6 1
Electrical	6	- -	- -	- 1	1 1	- 1	1 -	1 -	3 3
Garage	5	- -	- -	2 -	3 -	- -	- -	- -	5 -
Mercantile	5	- -	- -	2 -	- -	3 -	- -	- -	5 -
Hat manufacturing	5	- -	- -	1 -	2 -	2 -	- -	- -	5 -
All others	16	- -	- -	7 -	2 -	2 -	3 1	1 -	15 1
Totals	284	7 6	14 7	63 19	55 8	47 19	26 2	11 -	223 61

Employees suffering from this infection in textile mills included scourers, weavers, dryer tenders and color boys. In the shoe trade, treers, dressers and ironers. In tanneries, seasoners, trimmers and beamhouse workers. In garages, assemblers and finishers. In hat manufacturing, stiffeners, dyers and hardeners. Some of the miscellaneous industries in which dermatitis cases were investigated included laundries, lithographing establishments and the manufacture of drugs, celluloid novelties, furniture and violin strings.

The causative factors in these cases were:

In textile mills the handling of printed cloth and the cleaning of color boxes; in the shoe trade contact with the dressings used on shoes, that contained ammonia, gasoline, shellac and ether; in tanneries by handling skins that had been soaked in chrome solutions; in the metal trades by using caustic potash, cyanide, shellac and alkaline solutions; in the rubber trades by cement, naphtha and yellow aniline dyes; in chemical manufacturing by soda ash, carbolic acid and potash; in foundries by alcohol, shellac, oils and cyanide; in electrical manufacturing by handling wet mica, creosote powder and bichromate of potash. Other materials include grease, alcohol and gasoline in garages; potash, hydrochloric acid and colors in the paper trades; lemon and orange oils, fruit syrups and fins of fish in the making of food products; sulphuric acid in hat manufacturing; chlorine bleach in a laundry, while floss and horsehair caused irritation in an upholstering establishment. In the majority of these establishments the employees are instructed to wash their hands frequently and to wear gloves when possible to keep these irritants from coming in contact with the skin.

Lead Poisoning

There were 36 cases of lead poisoning investigated during the year. All were men. Nine cases occurred in storage battery manufacturing establishments. These were among men working in the plate department, employed as plate breakers and pasters, assemblers, separators, group burners. In plate breaking much fine dust escapes; in operating the pasting machines the dry plates are smoothed over a wire brush and dust is generated, and in standing over the melting pots the workmen are exposed to the escaping fumes.

In housepainting and spray painting, eight cases were investigated. Five of these occurred in buildings where the men used lead paint, and where the ventilation was insufficient. An employee of a shipbuilding concern used red lead in painting and contracted this disease. In iron and steel establishments men were employed handling dirty and dusty lead junk; others were employed on the lead melting kettles and five men were exposed to fumes of over 6,000 pounds of lead weekly at a temperature of 2200° F. Other cases include a worker who sprayed lead enamel on castings; a photo engraver who used a small air brush which contained white lead. In most cases respirators and exhaust systems were provided.

*Lead Poisoning Cases Investigated during Year Ending November 30, 1931,
by Industry, Age and Sex*

Industry	Total Cases	16-18 M. F.	18-20 M. F.	21-30 M. F.	31-40 M. F.	41-50 M. F.	51-60 M. F.	61+ M. F.	Total M. F.
Battery manufacturing	9	-	-	6	2	1	-	-	9
Painting	8	-	-	2	2	3	1	-	8
Lead works	6	-	-	2	2	2	-	-	6
Iron and steel works	5	-	-	-	3	2	-	-	5
Smelters	4	-	-	2	1	1	-	-	4
Rubber	1	-	-	-	-	1	-	-	1
All others	3	-	-	-	2	-	1	-	3
Totals	36	-	-	12	12	10	2	-	36

Gas and Fume Poisoning

There were 63 cases investigated: 55 men and eight women. Four of these were fatal.

Table given below contains the number of cases by industry, age and sex for the year ending November 30, 1931

Industry	Total Cases	16-18 M. F.	18-20 M. F.	21-30 M. F.	31-40 M. F.	41-50 M. F.	51-60 M. F.	61+ M. F.	Fatal M. F.
Garages	18	-	1	6	6	3	1	1	4
Chemicals	8	-	-	2	1	2	-	3	-
Shoe manufacturers	7	-	-	2	5	-	-	-	-
Textile	5	1	-	1	-	1	1	1	-
Metal trades	5	-	1	1	1	-	-	-	-
Rubber	3	-	-	-	1	-	2	-	-
Mercantile	2	-	2	-	-	-	-	-	-
Tannery	2	-	-	2	-	-	-	-	-
Gas and electrical	2	-	-	1	-	1	-	-	-
Street railway	2	-	1	-	-	1	-	-	-
Construction	2	-	-	1	1	-	-	-	-
Miscellaneous	7	-	-	1	1	4	-	-	-
Totals	63	1	3	17	11	13	4	6	4

In garages men employed as mechanics, cleaners and greasers were overcome by carbon monoxide fumes; in the manufacturing of chemicals, an employee was overcome by sulphuric acid; another poured tetrachloride and at times inhaled the fumes. Others inhaled ammonia, naphthalene and an accumulation of gaseous fumes. In the shoe trade three girls employed as wood heel coverers immersed heels into a strong solution and were overcome by the fumes; others were affected by alcohol, ammonia and gasoline fumes. In the textile industry a dryer was overcome by nitrous oxide fumes, and a winder by ammonia fumes while cleaning machinery; others were overcome by naphtha and sodium hydrochloride. Miscellaneous cases included an employee who worked over containers of muriatic and citric acid solutions; workmen who were made ill by gases leaking into the workroom; building trade mechanics who worked in rooms where heating apparatus was not provided with adequate exhaust, and others who handled lacquers and banana oil.

Chrome Poisoning

There were five cases of chrome poisoning investigated. All of these were men. Two occurred in tanneries, two in textile mills and one in a chemical establishment. In the tanneries both cases were caused by the employees handling leather that had been soaked in a chrome solution; in the textile mills the men were employed as backtenders on machines that printed cotton and came in contact with chrome colors; in a chemical establishment the employees handled chrome colors.

Industrial Anthrax Poisoning

There were 12 cases of anthrax poisoning investigated during the year. Nine of these were employed in tanneries, two in textile mills and one in a hat manufacturing establishment. These included 11 men and one woman. None was fatal. The causative factors in tanneries were chiefly the handling of skins. Skins and hides imported from Russia, Mexico, East Africa and China figured prominently in these cases; in textile mills, handling wool bags and refuse obtained from the process of

combing and trimming wool. Plant physicians made regular visits, and medical service was available to the employees at all times. Physical examination of workmen was given frequently. In all these establishments the employees were instructed to report every sore or pimple to the first aid room immediately. In the tanneries, gloves, rubber boots, and aprons were used as a protection.

Pneumoconiosis

There were 15 cases of pneumoconiosis investigated during the year. Nine of these occurred in the granite cutting industry, three of which were fatal. Nearly all of these occurred among employees who worked at the designing and lettering of monuments. Three occurred in a brake lining manufacturing plant, two in an enamel goods establishment, and one in a paint making establishment. Careful study was made of the fatal cases in which it was alleged that the workmen sustained this disease arising out of and in the course of employment. Documents on file with the department of industrial accidents were examined. These included reports of impartial physicians, hearings, including board members' findings and other information given in the record. Brief comment is made on these cases as follows:

An employee 70 years of age who worked at the occupation of crane driver was said to be exposed to the inhalation of sand dust, causing pneumoconiosis, terminating in a heart condition. Hospital X-ray examinations of the chest showed marked infiltration of both lungs and was said to be probably due to an old inflammatory condition or occupation. The insurer denied liability on the ground that the injury did not arise out of or in the course of employment. In this case a lump sum agreement was reached to redeem the liability considerably less than one half the amount of the maximum provisions in a fatal case. In this establishment there was the usual exhaust equipment for surfacing machinery and effort was made to keep the work place free from dust exposures.

After an illness of a few days, an employee who worked for six years for a concern as a granite cutter died suddenly, the death certificate giving the cause as pneumoconiosis. Claim for compensation was filed, alleging that death followed as a result of exposure to and the inhalation of granite dust. An impartial autopsy was made on the body of the employee and in the report the physician expressed this opinion:—

"The findings on post mortem examination of the deceased show that death was due to changes within the lungs. He had a marked increase in fibrous tissue, an old chronic pleurisy, marked silicosis of both lungs and tuberculosis. The pathology in the lungs can all be attributed to his occupation as a granite cutter, with the inhalation of granite dust."

The insurer immediately made payments upon the decision of the medical examiner. The granite polishing plant where the deceased worked is equipped with a very practical system of dust removal in connection with surfacing machinery and pneumatic cutting tools. It has taken every precaution to protect employees against the inhalation of granite dust.

In sheds used for the manufacturing of monuments, an employee 54 years of age was exposed to the inhalation of stone dust and dirt. He had been employed for fourteen years as a granite cutter and gave up work because of weakness, cough and dyspnoea. A few days later he consulted a physician who told him he had trouble in his lungs, due to his work. An impartial physician, appointed by the industrial accident board to make a physical examination of this employee, filed the following opinion:—

"I believe that this man has a pneumoconiosis complaint and, perhaps, also a pulmonary tuberculosis. Besides this he has cirrhosis of the liver and a chronic cardiac valvular disease. I believe that his heart and liver played some part in his incapacity, but that also the pulmonary condition is the chief factor. I consider that this lung pathology is related causally to his occupation as a granite cutter. I consider him incapacitated for work and the prognosis is doubtful because of the many pathological factors present."

This was supported by X-ray examination, indicating that the condition of the employee was compatible with pneumoconiosis. The employee died after

a few months' illness, and it was held that his death was caused by an injury arising out of and in the course of his employment. A dust-removal system was provided on surfacing machines in this plant, but a serious hazard prevailed in relation to the use of pneumatic tools.

Three workmen in an establishment manufacturing brake and clutch linings were affected with this disease; two of these were employed on the looms in the weave room where a fine white dust filled the air; the other employee was a mule spinner. This firm made changes in its ventilating system costing about \$17,000, upon orders being issued by the department. An excellent first aid room in charge of a competent attendant is provided, an active safety committee functions effectively and machinery is well guarded.

Two were men employed as sandblasters in an assembling establishment. The cabinet equipment is provided with suction exhaust and an air-flow helmet is furnished. This was replaced by a system in which the operative will work in a larger cabinet and a substitute material for sand will be used.

In a paint mixing establishment a young man 21 years of age helped to mix materials, including zinc sulphate which was dumped into an agitator having a modern exhaust system.

Pulmonary Tuberculosis

Five cases of pulmonary tuberculosis were investigated; two of these terminated fatally. In the fatal cases reports on file indicate the leading factors in each case, and reference is made hereto as follows:

In a large foundry one of these men was employed as a sand and steel chipper. In his work it was discovered that a dust hazard was present, and it is believed exposure to this danger was the cause of loss in weight. The impartial physician for the industrial accident department in the case gave the opinion that from the employee's story of the exposure it was his belief that the occupation played a marked part in causing his incapacity. The plant physician reported that pulmonary tuberculosis was diagnosed by him on April 1, 1930, and the date of the fatal termination was September 6, 1931. The investigation conducted by this division showed that the employee worked as a sand and steel chipper, in the course of which it is possible that irritant substances might be inhaled into the lungs. In the meantime the work in question had been confined to a selected part of the plant and done over a grating in the floor, with a downward suction. Respirators were also provided for and worn by the employees. This establishment has occupied a high standing for many years because of its interest in maintaining conditions favorable to the health and safety of employees. At much expense medical advice and treatment are available at all times for employees, and safety engineers are employed to maintain regular supervision of work place conditions.

In the other case a weaver employed for seven years in an establishment engaged in the manufacture of brake and clutch linings, sustained intensive damage to the lung tissue in the inhaling of dust. Diagnosis of tuberculosis was made early in 1930, and the date of the fatal termination was July 19, 1931. Physical examination is made of the employees semi-annually, with their co-operation. An excellent first aid room is provided and in care of a competent attendant, and good sanitary conditions prevail. Machinery is well guarded and an active safety committee supervises accident prevention work.

In the three non-fatal cases employees worked at the following:

In transporting stone from a quarry; at core-making in a bronze and aluminum factory and in the shipping department of a leather-manufacturing establishment.

Benzol Poisoning

Four cases of this disease were investigated. All were men. One of these was fatal. The investigation of this case by the division disclosed the following facts:

Employed by a concern in the color room of an establishment engaged in the manufacture of artificial leather, a workman 57 years of age was employed in washing empty cans with a mop before dipping them in a caustic tank. He

was exposed to a slight concentration of benzol fumes. On December 2, 1930, the onset of the disease began and a fatal termination occurred four weeks later. This employee worked seven years for the concern, beginning as an operator of a coating machine. Two years before his death he suffered from hemorrhages and was given outside work by the concern for a period of six months. He was then transferred to the job of cleaning cans in the color room which the concern had added to its plant. The work was done in one corner of the new building, where two exhaust fans with 1800 cubic feet capacity were located above these tanks. A screen extends downward from the ceiling on two sides to about eight feet from the floor, so that the direction of the air movement is under the screen and over the caustic tanks. A metal basket is used as a container for the cans and this is operated by a chain fall and carrier rail. The basket is filled with the cans and carried over the tank, then lowered into the caustic and afterwards washed in water. These cans contain about 50 per cent benzol, 35 per cent acetate and 15 per cent alcohol. Before cleaning, a small amount of this material remained upon the cans. The color room at the time of the investigation by the division was very well ventilated through natural and artificial means. The company had been active in attempting to reduce the hazard of the benzol contact by the installation of an efficient system and a reclamation equipment. Employees were instructed as to the dangers attending contact with benzol. A new formula is now in use in which the benzol content is reduced to 3 per cent, and a new solvent has been substituted.

The employment history in each of the other three cases was as follows:

In a straw hat factory an employee dipped hats into a liquid glaze containing hydro carbons, to which are added ethyl and butyl acetate and some benzol. No local exhaust equipment was provided. General ventilation was maintained by a large exhaust fan, and the employee inhaled the fumes arising from the process in the course of its operation. The employee was incapacitated for a period of several months and adequate exhaust equipment was installed by the fire.

In an establishment manufacturing artificial leather, benzol, denatured alcohol and ethyl alcohol were used as solvents. Two of the employees contracted a plastic anaemia, severe headaches and other symptoms of benzol poisoning. One of these was employed in the spreading room. In this place each machine is equipped with an exhaust hood, with blowers at the top and bottom. There is also an exhaust pipe about 12 inches in diameter which has a suction about three inches from the floor and opens to the outer air and is equipped with a powerful exhaust blower. A blood test is taken of the employees twice a year and examination of the air condition is made frequently.

Another employee worked for this concern as an operator in the mixing room. In this place rubber was mixed with benzol and other solvents put on the cloth. An elaborate system of ventilation is provided for this room. Ventilating pipes three inches from the floor in the middle of the room with a good fan exhaust are provided to remove impurities from the atmosphere. Expert engineers have been employed by the company to make regular examinations of the solvents and to conduct scientific tests and experiments concerning their use. In this case the impartial physician of the industrial accident board makes the following comment in his report:

"From the present blood picture, all I can say is that the man undoubtedly had a severe anaemia which may have been secondary to the inhalation of benzol, but which may have been primary (pernicious in character.) A knowledge of the fumes to which he was exposed would be of value. If I may be offered further data, I will try to make a more definite diagnosis, especially in regard to causal relationship."

In a subsequent supplemental report the impartial physician added:

"My best belief is that this man has a primary anaemia hastened by his exposure to the small amounts of benzol."

In both cases industrial poisoning was adjudged by the industrial accident board, while conditions in the work place indicate that excellent means for the protection of the employees were provided.

Silicosis

Ten of these cases were investigated: five occurred in the granite industry; three in chemical manufacturing establishments and two in enameling plants.

One of these terminated fatally.

In this case the employee worked as a sandblaster for a concern engaged in the manufacture of metal ware. The deceased employee sandblasted metal sections in a closed illuminated cabinet equipped with a blower attachment and exhaust outlets. Some dust escaped through the opening and fine sand was deposited on the rotary table in which the sections are placed. The employee inhaled this dust, and an X-ray examination confirmed the diagnosis of silicosis. The onset of the disease in this case began in November, 1930, and death occurred September 22, 1931. Air-flow helmets were provided and improvements made in the ventilating equipment to deal with the lead and sand hazards connected with the process in employment.

In the granite industry the cases of silicosis centered on the inhalation of dust created by the operation of pneumatic tools. This work was done in connection with the dressing of rough stone in an open shed, with exhaust systems attached to surfacing machinery and the use of respirators by the employees. It also included similar operations in lettering and designing on granite monuments. Employees in the various plants where men worked were interviewed and given personal information concerning the hazards in their occupation and the means for their protection against this disease.

The other three cases occurred in an establishment manufacturing a washing powder, in which liquid soap and soda ash were mixed for about four hours, 85 per cent of which was silica. The process of mixing was carried on in a separate room and the machinery used provided with a dust-collecting system. Respirators were provided for the employees. The incapacity of the workmen was of short duration. After making several attempts to adequately control the irritant dust hazards in connection with this work, the manufacture of the product was discontinued.

Other Dust Diseases

Six of these cases were investigated. These included employees in a furrier's establishment, in chemical manufacturing, in the repair of airplanes, in the generation of electric current, in the manufacture of upholstery filling, and in a leather establishment. Careful inspection was made of work places in all these plants and statutory provision for the welfare of the employees was found to be complied with.

Miscellaneous Cases

Seven of these were investigated and included an employee who suffered neuritis from the vibration of the surfacing machine which he operated; an employee in a garage who was afflicted with sciatica; a case of aluminum poisoning of an employee spraying paint; severe bronchitis which affected a workman dipping mesh bags in colored lacquer; brass poisoning to an employee who worked at filling shuttle eyes; a workman for an auto body concern, who handled steel and aluminum and developed a cancer on his lower lip; a girl twenty-seven years of age who was believed to have been affected by the drinking water in a shoe factory.

In all of these cases there was careful examination of conditions in the plant. Orders were issued to the concern in a few of these, requiring the installation of more suitable equipment for the protection of the employees' health.

SUNDAY WORK AND ONE DAY'S REST IN SEVEN

In the inspection of manufacturing and mercantile establishments it was found necessary to issue 180 orders requiring compliance with the One Day's Rest in Seven Law. Prompt cooperation was received in this connection. Schedules containing the list of names of those allowed to work on Sunday and designating the day of rest for each were verified. Time books showing the names of these employees were checked with the hours of work each day.

In establishments exempted from the operation of these statutory provisions, special attention was given to the employment of boys under eighteen and girls

under twenty-one years of age who may not work more than six days a week. Such places included hotels, restaurants, drug stores and concerns engaged in the transportation, sale or delivery of food. In other lines of employment where the worker may waive his twenty-four consecutive hours of labor in the six days next ensuing if he is required to work on Sunday, careful supervision was given. This included interviewing the employees and management and checking up the system of procedure followed by each concern. In the industries coming under the scope of this statute 168 orders were complied.

PURE DRINKING WATER

To provide fresh and pure drinking water for employees during working hours, 27 orders were issued. These were nearly all in small workshops and the statutory requirements were readily fulfilled. Plants where the drinking water came from pipes connected with the water supply for fire protection purposes were given careful attention. Cooperation in this work was received from the department of public health.

LOCKERS

In plants where the nature of the work made it necessary to make a substantially complete change of clothing as required by statute, three orders were issued and complied. These included manufacturing and mercantile establishments and hotels. In some instances the existing installation was not adequate for the number of persons employed and additional equipment was provided.

HOME WORK

For the purpose of making, altering or finishing wearing apparel in a room or apartment of a tenement or dwelling house, 225 licenses were granted in accordance with the provisions contained in section 143, chapter 149 of the General Laws. Monthly statements were received during the year from firms hiring, employing or contracting with a family doing such homework, giving the names of the persons employed for this purpose. Concerns engaged in this business were carefully instructed as to the requirements of the law prohibiting the employment of children or permitting them to work in this connection and their responsibility made plain.

WEEKLY PAYMENT OF WAGES

There was a total of 2,070 claims alleging violations of the weekly payment law. The procedure of writing to the employer in relation to the unpaid wages was continued and in many cases this resulted in payment of the wages promptly. From personal interview with the complainant facts are secured and jurisdiction of the department in the case is determined. If dispute arises as to the questions involved, the parties are requested to meet in conference at the office. This practice usually results in a satisfactory settlement to both. Effort is made to prevent the loss of time to employees in the handling of the complaints and through correspondence they are advised when continuances are granted by the court to enable the employer to pay the wages due the workmen.

Considerable service is given employees who become involved in bankruptcy proceedings. This includes advice in relation to the filing of the proof of claim within the period required by law and other provisions necessary to participating in the dividends.

Complaints alleging irregularities in connection with the assignment of wages or the trustee process were given attention. The statutory requirements were made known and if error in procedure under either process was apparent, the employer was notified if it appeared that violation of the weekly payment law had taken place. Police authorities and court officials continue to cooperate in the enforcement of the statute requiring the weekly payment of wages in advising persons who are victimized in this respect to file complaint with the department. Labor organizations and other agencies follow this procedure. Many cases require special investigation by the field worker of this division in securing information necessary for prosecution in court. Personal calls are made upon employers which result usually in complying

with the provisions of the law. The vicious practice of making payments by check without sufficient funds on deposit to provide for payment of the amount due is frequently the basis of the employee's complaint. In such cases immediate prosecution takes place. The sum of \$52,094.82 was paid by employers to workmen after notification was given that complaint was filed with the department alleging failure to comply with the requirements of the weekly payment law.

EMPLOYMENT ON PUBLIC WORKS

Supervision by the inspection force was given to operations in the building of roadways and the construction of walls and projects by persons contracting with the commonwealth. This service also covered the erection of schoolhouses and other structures by cities and towns, and extended to county buildings and additions to State institutions. During the year 200 contracts were awarded by the department of public works for the construction of roads, which totaled approximately \$16,000,000. At the peak of the season during the summer and early fall period, approximately 7,000 laborers, workmen and mechanics were employed in this connection. Contractors engaged in these undertakings were required to give preference to citizens for employment: First, to those who have served in the army or navy of the United States in time of war and have been honorably discharged therefrom; secondly, to citizens of the commonwealth generally; and finally, if these cannot be obtained in sufficient numbers, to citizens of the United States. Inspectors of the division cooperated with contractors in securing workmen who were competent to meet the qualifications for such employment. Because of the acute condition of unemployment the assistance of public departments in cities and towns, American Legion posts and welfare agencies were solicited for employees who qualified, in order to enforce vigorously the statutory provisions, giving preference in such employment to citizens. On some of these projects the federal government aided the state, and in such cases the Massachusetts statutes with the classified preference for employment, was superseded by the federal law in which the contractor is required to give preference in employment only to honorably discharged soldiers, sailors and marines. Under these circumstances no other preference or discrimination among citizens of the United States is permitted. There were 37 contractors who shared in these federal aided projects and the total amount of money contributed by the federal government was \$4,810,071.35.

The legislature of 1931 made changes in the statutes with regard to employment in the construction of public works. The law now requires that in the employment of mechanics, teamsters and laborers, in additions made to public works or in their alteration, the same preference shall be given as is required in the construction of public works. These provisions also apply to regular employees of the commonwealth or the county, town or district when such employees are employed in the construction, addition to and alteration of public works for which special appropriations are provided. These enactments extended the scope of the inspectional supervision to cover the repair and alteration of buildings, highway and other projects under the auspices of public authorities.

During the year 161 complaints were made to the division alleging violation of the law in this connection, and of this number 76 were found to be without basis in fact. In the cases remaining there was prompt compliance with the law when orders were issued by the Department.

Investigation was made in 29 complaints alleging that the customary and prevailing rate of wages was not paid to mechanics employed in the construction of public works. Carpenters, engineers, iron workers, plasterers, bricklayers and electricians were included in these cases and nearly all were employed by contracting firms from outside of Massachusetts. Agreement was promptly made to pay the prevailing rate in such disputes when the inspector showed that the rates paid mechanics in the district or locality in which the work was being done justified such action. This procedure resulted in prompt compliance with the requirements of the statutory provisions. There was a total of 485 orders issued by the department in connection with projects concerning the constructing of public works. These were promptly complied.

Eight-Hour Law

There was a total of 19 complaints filed with the division alleging violation of the eight-hour law in public work projects. These were chiefly concerned with road work and sewer and water departments in cities and towns. In some cases school-houses were included. In the construction of projects in connection with the building of main travel arteries, dangers arising from traffic conditions and the excavation of the road bed caused extraordinary emergencies, and in such instances it was lawful because there was danger to property, life, public safety and public health. Cooperation was received from county, city and town officials in enforcing the provisions of this law.

BRANCH OFFICE ACTIVITIES

Offices located in Fall River, Lawrence, Worcester, Springfield and Pittsfield continue to give useful service to the industries in these various sections. Time notices for women and minors and schedules in connection with the one day's rest in seven law are available for distribution. Bulletins containing rules and regulations for the safeguarding of machinery, toilet and washing facilities, requirements for lighting industrial establishments, and for the prevention of accidents in building operations may be obtained. Complaints alleging violation of the weekly payment law are received and given prompt attention. Conferences are held between workmen and employers when disputes arise in connection with the provisions of this law, and settlement usually follows to the satisfaction of the parties interested. Advice is given to the complainants and the correct procedure explained if it is necessary to invoke the civil process in order to recover the wages due.

Each branch office files a daily report indicating the type of service given to the community. These show the interest taken in the problems concerning the employment of women and minors; the issuance of employment and educational certificates; requirements of the one day's rest in seven law; information as to the prevailing rate of wages in the construction of public works, and provisions giving citizens preference in this employment. Industrial establishments are given information in relation to the requirements of the law through the medium of telephone calls, and prompt assistance is always given. Workmen who call at these offices in regard to injuries sustained in their employment have careful record made of all the facts, and these are then brought to the attention of the department of industrial accidents for the proper action. This cooperation enables both departments to give service to injured employees, which is appreciated.

LEGAL DEPARTMENT

During the year ending November 30, 1931, the department instituted a total of 916 prosecutions for various violations of our laws. Seven hundred and two defendants were found guilty and 36 were acquitted. One hundred and sixty-one complaints for violations of the statute providing for the weekly payment of wages were dismissed, the wages having been paid. In such cases many courts are reluctant to give a man a criminal record. The following is a tabulation of the cases:

Total number of prosecutions	916
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OUTCOME:

Found guilty	702
Nol prossed	3
Admitted to plea of nolo and found guilty	14
Dismissed by order of the courts	161
Found not guilty	36

Total	916
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CHARACTER OF OFFENCE:

Women and Minors:

Overtime employment	38
Employed at time other than stated in the time notice	86

Minors:

Employed under fourteen years of age	1
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Employed without certificates	23
Employed in prohibited trades	1
<i>Time Notices:</i>	
Not posted	9
<i>Public Works:</i>	
Overtime employment	13
Violations of Citizens' Preference Act	11
Violations of Veterans' Preference Act	6
Failure to pay weekly	2
<i>Miscellaneous:</i>	
Illegal advertising	2
Failure to guard machinery	2
Failure to give one day's rest in seven	4
Violations of rules in building operations	9
Non-payment of wages	705
Hindering an inspector	2
Refusing to admit an inspector	2

REPORT OF THE BOARD OF CONCILIATION AND ARBITRATION

EDWARD FISHER, *Chairman*; HERBERT P. WASGATT, SAMUEL ROSS

On December 1, 1930, there were pending five joint applications for arbitration; during the year 370 joint applications were filed, making a total of 375. Decisions were rendered in 365 cases and 10 are now pending. In addition two petitions for normality certificates were filed.

CONCILIATION

The year 1931, by reason of the continued period of depression, has been a most trying one to those engaged in industrial as well as other pursuits. This is true both as to the employee and the employer. The lack of buying on the part of the purchasing public has resulted in a curtailment in many lines of industry and also the keen competition previously existing in at least two major industries, textile and shoe, by reason of over-production capacity, has been thereby further intensified. This has caused the manufacturers to seek a reduction in their manufacturing and merchandising costs in order to secure a portion of the existing business. As a result employers in the two industries in question, as well as in other lines, have deemed it necessary to put into effect reductions in the rates of wages. In many instances this has occasioned unrest and discontent on the part of the employees, resulting in a cessation of work through strikes. To what extent the reduction in wages, coupled with other economies instigated by the manufacturers, has resulted in their securing more business than would otherwise have been obtained it is difficult, if not impossible, accurately to determine, but in spite of the fact that unquestionably business to some extent has been secured thereby, there have been unusually long and frequent periods of part time or of nonemployment. This situation, however, has been relieved to some extent by the material reduction in the cost of living and it is reassuring to note that as a rule employers of labor as well as the commonwealth itself through its executive, legislative branches and officers and officials, have exerted themselves in an endeavor to afford relief therefrom. Such efforts have also brought forth a reassuring response from the employees.

As a result the board and its agent have been actively engaged in the performance of their duties, calling for its services and good offices in endeavoring to advise, counsel and aid the contending parties in the solution of the problems arising through the relationship of employer and employee. Of the labor controversies arising during the year resulting in cessation of work through strikes, the two most serious from the point of view of numbers of employees and disturbances were the strike in the textile industry in Lawrence and the strike of longshoremen in Boston, brief outlines of which are given in this report. The strike in Lawrence also assumed more extensive proportions as it appeared to be a test, to some extent at least, as to whether

or not reductions in wage rates in this industry were to be generally effected elsewhere in the commonwealth.

At the close of the year 1930, at the direction of His Excellency the Governor, the Board entered upon an investigation of a complaint arising out of the discharge of an employee by the New England Telephone and Telegraph Company, a report upon which was made during the present year, and is printed herewith. This is the first time that the present board has been called upon to act under this provision of the law.

Textile Workers, Lawrence and Vicinity. During the week of October 5 a strike of textile operatives in Lawrence and vicinity occurred by reason of a previously announced cut in wages of 10 per cent, to become effective on Tuesday, October 13. While a comparatively small number of the operatives in these mills were members of organized labor, yet a determined stand on their part, accompanied by mass picketing, so-called, and demonstrations in the vicinity of the mills involved, occasioned practically a complete cessation of work in these mills, employing in excess of 20,000 operatives. While the mills generally continued to remain open during this week and also on Tuesday, the 13th (Monday being a holiday), and some mills for a few days thereafter, very few operatives continued at work. The mills affected by the strike were as follows: Arlington Mill, Pacific Mill, Monomac Spinning Company, Osgood Mill, Stevens Mill and five mills of the American Woolen Company; to wit, the Washington, Wood, Shawsheen, Ayer and Prospect mills; all the mills being located in Lawrence except the Osgood and Stevens, in North Andover, and the Shawsheen in Andover. Later many of the operatives in the Kunhardt mill, who had continued to work under the reduction, joined the strike. Previous to the announced wage reduction representatives of the mills conferred with the citizens' committee, of which His Honor, Mayor Landers, was chairman. This committee comprised a number of prominent citizens and officials in Lawrence. Soon after this controversy arose and throughout its continuance His Excellency, Governor Ely, took an active part in endeavoring to adjust it.

The board during the week of September 28 tendered its good offices to the mayor and representatives of the employees and of the employers, but as conferences were still being held with the citizens' committee it was deemed inadvisable for the Board to intervene actively in the matter at that time. The board, however, conferred with representatives of the manufacturers and was informed by them that a reduction in labor cost was necessary if they were to continue in business and that no compromise would be made; that in view of the existing conditions the proposed wage reduction was very conservative. The board on October 6 had a further conference with the representatives of the manufacturers and suggested for their consideration as a step towards a solution of this controversy that the putting into effect of the proposed cut be deferred for a period of one month; the board in the meantime to investigate conditions and report its findings, with special reference to the contention on the part of the manufacturers that higher wages were generally paid in Lawrence than elsewhere; that reductions had been made in the industry in other manufacturing centers and that a lower labor cost was necessary by reason of this fact and the keen competition in the industry. Later the board was informed by the manufacturers that this suggestion was not acceptable. The board also conferred with representatives of the employees affiliated with the United Textile Workers of America and the American Textile Union, and later with their committee of about sixty, comprising membership from each of the mills involved with the exception of the Kunhardt. Later at a conference with a special committee of the general committee of the employees, held on October 22, the board was informed that the following proposals, accepted and approved by their membership, had been made to the manufacturers, but were not accepted:

1. That the wage cut be deferred.
2. That a committee be set up, two members of which will be chosen by the employees, two by the employers, and one who will be mutually agreed upon by these four. It is proposed that this committee make a survey to find out the facts involved in the present wage cut controversy, not with a view of drawing up a compromise settlement, but in order to ascertain the true facts which brought about the wage cut and whether they were justified.

3. If these proposals are accepted by the employers, the workers agree to go back to work immediately upon acceptance.
4. The workers agree that acceptance of these proposals on the part of the employers need not be unanimous. If one or two employers fail to agree to these proposals, the workers will meet with those employers who will agree.
5. It is understood that there will be no discrimination against any striker, and all will be given an opportunity to return to work.

The board pointed out, however, that these proposals did not actually contain an offer to arbitrate. The committee expressed the view that such was the intention and assumed the responsibility of stating to the board that their membership would arbitrate the issues presented by the wage reduction. The board informed the committee that at conferences with the manufacturers they had declined to arbitrate.

Thus the labor controversy continued with the mills closed, some of the work being done elsewhere than in Lawrence; in one instance a part of the machinery in one of the mills being moved to a mill without the commonwealth. As an adjustment of this controversy, either through conciliation or arbitration, seemed unlikely, the board was prepared to undertake an investigation as provided by law "and ascertain which of the parties thereto is mainly responsible or blameworthy for the existence or continuance of the same", and if a settlement was not reached, "publish a report finding such cause and assigning such responsibility or blame." However, as efforts were still being made to find a solution, the board deemed it advisable at that time to defer such investigation. One of these efforts was to endeavor to have a ballot taken by the employees as to whether or not they would return to work with the reduction in effect. Such a vote was taken in the Kunhardt mill with the result that the employees returned to work, and later a vote was taken in the Stevens mill with a similar result. While such efforts were not successful, nevertheless during the week of November 9, against the advice and activities of their leaders, the employees in large numbers returned to work as far as employment was afforded and the strike for all practical purposes thereby came to an end. All the mills with the exception of the Pacific resumed operations.

Longshoremen, Boston. On September 30, 1931, the agreement between the steamship companies and their employees, longshoremen, members of Locals Nos. 799, 800 and 805 of the International Longshoremen's Association, expired. No conferences had been held by the parties relative to a new agreement as, following the custom of previous years, the general terms thereof, including the basic wage rate, were being negotiated by the officers of the International Longshoremen's Association in New York under the leadership of Joseph P. Ryan, president. After many conferences and in spite of strenuous efforts on the part of the steamship companies to secure a reduction in wage rates, an agreement was finally reached in New York on September 30, which embodied some changes, but none in the basic wage; notice of which was received by the parties in Boston on that day. Following such adjustment, it was the custom at this port to then settle upon the terms of the local agreement. The longshoremen in this port had been successful for many years in maintaining certain practices and conditions not generally existing elsewhere, prominent among which were two: one, the limited sling load, so-called; the other, a longer period for the evening meal, two hours being allowed instead of one. As to the limited sling load, this being the load lifted by the hoisting machinery in loading and unloading vessels, this provision, especially of late years, had been strenuously opposed by the steamship companies as seriously interfering with the successful conducting of business at this port. As a result of negotiations, the longshoremen under the terms of the last two annual agreements; to wit, since October 1, 1929, had waived this provision although there was a limitation as to the number of men working in connection therewith, depending upon the weight of such load.

On Thursday, October 1, the steamship companies learned that a vote had been taken by the longshoremen at a meeting held the evening before, authorizing a strike to be effective on the following day, Thursday, unless their demands were acceded to. One of the demands was for a restoration of the provision limiting the weight of the sling load. The committee of the steamship companies immediately visited the office of His Honor, Mayor Curley of Boston, and later accompanied by him conferred with His Excellency, Governor Ely, at which conference the em-

ployees were represented and there was also present a representative of the Boston Port Authority. As a result of this conference, upon the recommendation of the Governor, a truce of twenty-four hours was agreed upon, during which the parties were to endeavor to compose their differences. In the meantime the representative of the steamship companies had notified President Ryan in New York of the action of the longshoremen, questioning the right and justification of the locals in taking such action. He came to Boston on Friday and joined in the conference and it was generally believed that his presence would result in an adjustment of the controversy. No agreement, however, was reached and the truce was further extended for a period of four days; to wit, until Tuesday, October 6. Three steamship companies did not join in such extension, one being the Luckenbach Company, whose employees, longshoremen, were then on strike. On Saturday, October 3, there were disturbances resulting in a cessation of work and accompanied by serious assaults. However, work was resumed later in the day. Although conferences were continued, at which Richard Parkhurst, secretary of the Boston Port Authority, was present, and mutual concessions were discussed, no agreement was reached. On Tuesday, Mr. Parkhurst, on behalf of the Port Authority, submitted an offer of compromise and asked for an extension of the truce for twenty-four hours. This was not acceptable to the longshoremen and on Wednesday, October 7, a general strike of about two thousand took place. The efforts to secure an adjustment continued, however, without success and the work of the steamship companies was carried on without any serious interruption, generally speaking, by employees who took the places of the strikers.

The board, after ascertaining that the good offices of those who had been endeavoring to aid the parties in reaching an adjustment were not successful, conferred with the committee of the steamship companies and later with the committee of the employees and discussed with them their respective positions and contentions. Later, at a conference with the attorney of the employees, the board suggested that if it would avail towards securing an adjustment, the department of labor and industries would assume the responsibility during the continuance of the new agreement, in the event that the requirement as to the limitation of the sling load was waived, of investigating this matter of the weight of the sling load and determining what necessity, if any, there was for any requirement limiting the load or other safeguards in connection therewith. As apparently no progress was being made towards a final and definite settlement, the board was prepared to start an investigation to determine under the statute who was mainly responsible or blameworthy for the labor controversy or its continuance. However, before doing so the board communicated with the committee of the steamship companies to ascertain if they would arbitrate the differences, which they declined to do. Previously the committee of the employees had submitted to the steamship companies an outline of arbitration of the differences before a special board. This, however, was not acceptable to the companies. The board on November 25 held a conference with the committee of the employees and their attorney, President Ryan and John J. Doolin, vice-president of the international union, in charge of the Boston district. The committee of the steamship companies had been invited to attend, but had declined. At this conference the board explained that the chairman of the committee of the steamship companies had informed the board that they would not arbitrate the issues in dispute. The board also explained in detail the method followed in an investigation and its power and authority in making the same. President Ryan pointed out that the prolonging of the controversy was occasioning a serious situation at this port, which might extend to other ports as the work was being done by men chiefly brought from without the commonwealth; if the controversy were further prolonged, it would be very difficult to secure any agreement whereby the members of the locals would be restored to their employment. Before the conference adjourned the board recommended to the committee that full power and authority be given to President Ryan to adjust the controversy, the recommendation being acceptable to him. This recommendation was approved by the committee. The board also informed the committee that the department would still abide by the offer to investigate during the continuance of this agreement the question of the operation of the sling load and also of the period of the evening meal, if desired.

On Sunday, November 29, the three locals voted to give to President Ryan full authority to adjust the controversy. Later through conferences held by President Ryan with a committee of employees and a committee of the steamship companies, at which Mr. Parkhurst was also present, an agreement was reached, substantially in the form of that existing between the longshoremen and the steamship companies in New York, under the terms of which no limitation was placed on the weight of the sling load, also with other changes, including a reduction in the period for the evening meal.

ARBITRATION

Because of the keen competition resulting from over-production capacity in the shoe industry, above referred to, the manufacturers in Brockton and vicinity having contractual relations with the Boot and Shoe Workers' Union, after negotiating for a reduction in existing prices and failing to secure it, filed joint applications with the board, hearings on which were held, and after a thorough investigation awards were made. In other instances, manufacturers seeking to make shoes at prices below the existing grades, filed joint applications with the board, upon which after investigation the board made its awards. As a result, coupled with applications from manufacturers and employees in other localities, the board has had a very busy year in its work of arbitration, having made awards on 365 applications, five of which were pending from the previous year.

NORMALITY

Two petitions for normality certificates were filed. After a hearing and investigation a certificate was issued in one case. The other petition was withdrawn.

LIST OF INDUSTRIES AFFECTED AND PRINCIPAL DIFFERENCES IN CONCILIATION AND ARBITRATION CASES

Conciliation

Industries Affected: Building and building material, hotel, quarrying, road construction, rubber goods, shoe, steamship, transportation.

Principal Differences: Wages, working conditions.

Arbitration

Industry Affected: Shoe.

Issues Arbitrated: Wages and working conditions.

REPORT OF THE MINIMUM WAGE COMMISSION

EDWARD FISHER, *Chairman*; HERBERT P. WASGATT, SAMUEL ROSS,

ETHEL M. JOHNSON, *Acting Director*

OUTLINE OF FUNCTIONS

The duties of the minimum wage commission under the law comprise the following functions: investigating the wages of women employees in occupations where there is reason to believe that the wages of a substantial number are below the requirement of healthful living; establishing wage boards to recommend minimum rates for women and minors; entering wage decrees based on the recommendations of the boards; inspecting to determine compliance with the decrees; and publishing the result of the findings.

An account of the work carried on during the year is given in the sections that follow.

WORK IN 1931

There are now twenty-one wage decrees in effect. As usual, field work during the year has been confined to a great extent to inspections to determine compliance with these wage decrees, together with numerous re-inspections made in connection with the adjustment of non-compliances found at the time of the original inspections. Many inspections were also made as the result of complaints. In addition, with a view to establishing wage boards in the business of pocketbooks and leather-specialties manufacturing and in waste-sorting, investigations of the wages of women

in these two occupations have been made. As a result of these studies the commission voted to establish a wage board for women employed in the manufacture of pocketbooks and leather specialties, and has under consideration the establishing of a board in the waste-sorting occupation. During the year the commission has published non-compliances under fifteen decrees, the largest number ever published in any one year.

The continued period of depression has presented to the commission many unusual problems and many difficulties in securing compliance with its decrees. This has been accentuated by more or less general wage reductions in different lines of industry and periods of part time employment by reason of the depression. Some requests have also been presented to the commission to reconvene wage boards in various occupations in order to revise the decree downward. Thus far the commission has taken no definite action thereon. It is hoped that the present legislature will enact legislation simplifying and expediting the procedure under which existing decrees may be altered or changed without the delay and expense necessitated through the reconvening of wage boards or establishing new ones.

PUBLICATIONS

The only publication other than press notices issued during the year is the reprint from the annual report of the department of labor and industries giving the outline of the work of the division of minimum wage.

INVESTIGATIONS IN 1931

Pocketbook and Leather Goods Industry

An investigation of the pocketbook and leather goods industry was made in the summer of 1931. Payroll transcripts were taken for the months of June and July. Payroll records were available for tabulation for 820 women employed in 30 firms. Of this number, 88.2 per cent were earning under \$15 a week and 78.7 per cent were earning under \$13 a week. Of the 714 women paid on a part-time basis, 79.3 per cent had rates for full time employment below \$15 a week, and 69.0 per cent had rates below \$13 a week. The tables following show in detail the wage situation found in the investigation. The commission has voted to form a wage board for this industry.

Waste Sorting Industry

An investigation was also made in the summer of 1931 into the wages paid to women and girls in the waste sorting industry. These records covered a period of three months, April through June. Payroll records for tabulation were received for 460 women employed in 41 waste sorting shops. The following tables show that 25.6 per cent had rates under \$10, 68.9 per cent with rates under \$11, and 73.9 per cent had rates under \$12 a week.

ADVERTISEMENT OF NON-COMPLIANCES

The commission is by law required to publish names of firms that fail or refuse to comply with its decrees. Publication is regarded as a last resort. Every effort is made to secure adjustment of non-compliances without publication. An account of the procedure taken in non-compliance cases prior to publication is given in the report for 1929. Table three outlines the non-compliance publications during the fiscal year ending November 30, 1931.

Decrees and Cases

Table three following shows the extent of the advertisements under decrees during the current year. In most instances the number of firms it was necessary to publish represents only a very small proportion of all of the firms inspected in the occupation. The same is true in non-compliance cases.

Advertisements this year represent the fifth publication under the druggists' preparations, laundry and paper box decrees; the fourth publication under the candy, men's furnishings, muslin underwear and women's clothing decrees; the third under the retail store, electrical equipment and supplies, and stationery goods and envelopes decrees; the second in the case of the jewelry decree; and the initial publication for the boot and shoe cut stock and findings decree, corset, knit goods and men's clothing industries.

Table 1. — *Average Weekly Earnings of 820 Women Employed in 30 Establishments Engaged in the Manufacture of Pocketbooks and Leather Novelties in Massachusetts: By Type of Establishment*
(Based on investigation records for the period June through July, 1931) (Cumulative)

TYPE OF ESTABLISHMENT		NUMBER AND PER CENT WITH EARNINGS														Total
		Under \$9	Under \$10	Under \$11	Under \$12	Under \$13	Under \$14	Under \$15	Under \$16	Under \$17	Under \$18	Under \$19	Under \$20	Under \$20 and Over		
<i>Pocketbooks and Handbags</i>																
Number	235	289	351	385	406	425	437	452	465	470	473	477	16	493		
Per cent	47.7	58.6	71.2	78.1	82.4	86.2	88.6	91.7	94.3	95.3	95.9	96.8	3.2	100		
<i>Leather Novelties</i>																
Number	84	121	144	169	180	193	204	210	213	218	219	220	9	229		
Per cent	36.7	52.8	62.9	73.8	78.6	84.3	90.0	91.7	93.0	95.2	95.6	96.1	3.9	100		
<i>Trunks, Suit Cases, Straps, Miscellaneous</i>																
Number	21	27	38	48	59	72	82	86	92	94	96	96	2	98		
Per cent	21.4	27.6	38.8	49.0	60.2	73.5	83.6	87.7	93.8	95.9	97.9	97.9	2.1	100		
TOTAL:																
NUMBER	340	437	533	602	645	690	723	748	770	782	788	793	27	820		
PER CENT	41.5	53.3	65.0	73.4	78.7	84.1	88.2	91.2	93.9	95.4	96.1	96.7	3.3	100		

Table 2. — *Weekly Rates of 425 Women Employed in 39 Establishments Engaged in Waste Sorting in Massachusetts:
By Type of Establishment (Cumulative)*

(Based on investigation of payroll records for the period April through June, 1931)

TYPE OF ESTABLISHMENT			NUMBER AND PER CENT WITH RATES												Total
			Under \$7	Under \$8	Under \$9	Under \$10	Under \$11	Under \$12	Under \$13	Under \$14	Under \$15	\$15 and Over			
<i>Mill Remnant</i>															
Number	131
Per cent	100
<i>Waste Rag</i>															
Number	162
Per cent	100
<i>Waste Paper</i>															
Number	99
Per cent	100
<i>Burlap Bags*</i>															
Number	33
Per cent	100
TOTAL:															
NUMBER	425
PER CENT	100

* Includes sorting and repairing burlap bags for resale, and miscellaneous work.
Information regarding rates was not available for 35 women including all in 2 establishments.

Table 3. — Advertisement of Non-compliances Under Minimum Wage Decrees, 1931

DECREE	Date of advertisement	Number of establishments in most recent inspection	Number of records in most recent inspection	Cases of non-compliances		Per cent of non-compliances	
				Firms	Cases	Firms	Cases
Boot and Shoe Cut Stock and Findings	12/9/30 4/18/31 5/9/31 10/14/31	112	1457	19	187	17.0	12.8
Candy	9/22/31 10/14/31	129	7809	5	26	3.9	.3
Corset	10/14/31	18	712	1	16	5.6	2.2
Druggists' Preparations	7/28/31	53	760	2	16	3.8	2.1
Electrical Equipment and Supplies	2/14/31 11/30/31	68	6509	2	184	2.9	2.8
Jewelry and Related Lines	12/31/30 7/7/31	109	4477	2	23	1.8	.5
Knit Goods	4/6/31	39	1901	1	30	2.6	1.6
Laundry	11/30/31	392	6391	17	353	4.3	5.5
Men's Clothing and Raincoat	7/17/31 7/28/31 10/14/31	85	2624	10	176	11.8	6.7
Men's Furnishings	3/10/31 6/12/31	71	3473	6	386	8.5	11.1
Muslin Underwear	3/10/31 3/24/31 7/28/31 10/14/31	81	3018	18	438	22.2	14.5
Paper Box	12/6/30 1/2/31 7/7/31 8/28/31	142	3371	11	153	7.7	4.5
Retail Stores	12/8/30 5/20/31 9/15/31	2438	29964	158	1537	6.5	5.1
Stationery Goods	5/29/31	71	3747	1	1	1.4	.03
Women's Clothing	7/28/31 10/14/31	131	1959	2	30	1.5	1.5

INSPECTIONS

Decrees

Inspection was conducted under 21 decrees. This includes, however, inspection on complaint, partial inspection and that in connection with other decrees. Complete inspection was made during the year under two decrees: druggists' preparations; toys, games and sporting goods. In addition inspection was initiated under the following decrees in 1930 and completed in 1931: candy, laundry and men's clothing.

Inspections on complaint or incidental to the regular work or reinspection preliminary to publication of non-compliances were made in one or more establishments under each of the following decrees: boot and shoe cut stock and findings; bread and bakery products; brush; canning and preserving and minor lines of confectionery; corset; electrical equipment and supplies; jewelry; knit goods; men's furnishings; millinery; muslin underwear; office cleaners; paper box; retail stores; stationery goods and envelopes; and women's clothing.

REINSPCTIONS

In connection with the inspection work, wage records for tabulation were secured for 24,109 women and girls in 1,185 firms. In addition a large number of reinspections were made. These included revisits to secure adjustment of non-compliances

found in the course of the regular inspection; also reinspection preliminary to publication in the case of firms with cases pending from previous years. These reinspections also represent visits to 300 establishments and checking up 3,424 cases.

In some instances several visits for various reasons are necessary in connection with the inspection of a single establishment. If non-compliances are found, reinspection is made later to see if they are adjusted. Many times several inspection visits are necessary to assist in the adjustment of non-compliances.

These numerous revisits or reinspections are not included in the establishments recorded in the inspection tables. In all, 2,777 establishments were visited by agents of the commission during the year.

DISPOSITION OF INSPECTION CASES

Disposition of Non-compliances Pending from Previous Years

At the beginning of the fiscal year, there were outstanding from previous years 3,424 cases of non-compliances in 300 firms. Most of these came under the retail store decree, 1,538 cases in 177 firms, the majority of which have been advertised one or more times.

There were also 465 cases in 38 laundries; 342 cases in 13 men's furnishings establishments; 321 cases in 11 muslin underwear establishments; 148 cases in 12 paper box factories; 148 cases in an electrical equipment and supplies factory; 176 in 17 boot and shoe cut stock and findings factories; and 140 cases in 13 men's clothing establishments.

The remaining cases were divided among a few firms under each of the following decrees: candy, canning and preserving and minor lines of confectionery; jewelry; knit goods; office cleaners; stationery goods and envelopes; toys, games and sporting goods and women's clothing.

Reinspection was made in all of the firms with cases pending to try and secure adjustment; or, when this could not be effected, as a preliminary to publication. In connection with the advertisement of non-compliances, it is the policy of the commission to have reinspection made within a reasonable time prior to publication.

Adjustments

So large a part of the cases were in firms previously published, comparatively few adjustments were effected. Wages were raised to meet the provisions of the decrees in 129 cases in 38 firms. Adjustment by changing type of work or method of payment or hours so that the employees were enabled to earn the minimum was made in 140 cases in 16 firms. Further adjustments were reported or promised in 13 cases representing seven establishments.

There were five employees in two establishments covered by the piece rate ruling; and four cases in two establishments that were covered by special licenses. It was found that two cases in two firms had been incorrectly recorded.

Advertisements

The firms advertised include 2,692 of the cases pending at the beginning of the year, and were distributed as follows: 176 cases in 17 boot and shoe cut stock and findings establishments; seven in two candy factories; 148 in one electrical equipment and supplies factory; 23 in two jewelry establishments; 30 in one knit goods establishment; 249 in 15 laundries; 34 in five men's clothing factories; 219 in five men's furnishings establishments; 177 in 10 muslin underwear establishments; 134 in 11 paper box factories; 1,474 in 155 retail stores; 20 in one women's clothing establishment and one in one stationery goods and envelopes establishment.

Cases pending

There are outstanding at the close of the year 41 cases in four establishments mainly under the men's clothing decree. An outline of the distribution of these cases is given in Table 4.

DISPOSITION OF INSPECTION CASES

Disposition of New Cases

In the course of the reinspection of firms with cases outstanding from previous

Table 4. — *Disposition of Cases of Non-compliance Pending from Previous Years*
(C — Cases, E — Establishments)

Situation and Disposition of Cases	Boot and Shoe Cut Stock and Findings		Candy		Canning and Pre- serving and Minor Lines of Confectionery		Electrical Equipment and Supplies		Jewelry and Related Lines		Knit Goods		Laundry		Men's Clothing		Men's Furnish- ings	
	C.	E.	C.	E.	C.	E.	C.	E.	C.	E.	C.	E.	C.	E.	C.	E.	C.	E.
Pending from previous years	176	17	43	7	10	2	148	1	23	2	30	1	465	38	140	13	342	13
ADJUSTMENT**																		
Wages raised	—	—	30	5	4	1	—	—	—	—	—	—	35	15	—	—	3	2
Earning minimum on piece work	—	—	1	1	3	1	—	—	—	—	—	—	3	2	31	1	69	1
Hours reduced or change of work	—	—	—	—	—	—	—	—	—	—	—	—	10	2	2	—	—	—
Adjustment reported or promised	—	—	1	1	—	—	—	—	—	—	—	—	3	1	—	—	2	—
Covered by piece rate ruling	—	—	—	—	—	—	—	—	—	—	—	—	3	1	—	—	—	—
Special license, special license type or similar case	—	—	—	—	—	—	—	—	—	—	—	—	1	1	—	—	—	—
Incorrectly recorded	—	—	—	—	—	—	—	—	—	—	—	—	1	1	—	—	—	—
Left	—	—	—	—	—	—	—	—	—	—	—	—	153	23	13	5	48	9
Firm out of business	—	—	4	3	3	1	—	—	—	—	—	—	—	—	—	—	1	—
Classification changed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
ADVERTISED IN 1931	176	17	7	2	—	—	148	1	23	2	30	1	249	15	21	2	219	5
PENDING	—	—	—	—	—	—	—	—	—	—	—	—	—	—	34	5	—	—
															39	2		

**See notes on Table 6.

Table 4. — *Disposition of Cases of Non-compliance Pending from Previous Years — Concluded*
(C — Cases; E — Establishments)

Situation and Disposition of Cases	Muslin Underwear		Office Cleaners		Paper Box		Retail Store		Stationery Goods and Envelopes		Toys, Games, and Sporting Goods		Women's Clothing		Total	
	C.	E.	C.	E.	C.	E.	C.	E.	C.	E.	C.	E.	C.	E.	C.	E.
Pending from previous years	321	11	1	1	148	12	1538	177	8	1	1	1	30	3	3424*	300
ADJUSTMENT**																
Wages raised	7	5	—	—	8	2	42	8	—	—	—	—	—	—	129	38
Earning minimum on piece work	18	6	—	—	4	1	—	—	—	—	—	—	1	1	130	14
Hours reduced or change of work	—	—	—	—	—	—	—	—	—	—	—	—	—	—	10	2
Adjustment reported or promised	—	—	—	—	—	—	—	—	—	—	—	—	—	—	13	7
Covered by piece rate ruling	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5	2
Special license, special license type or similar case	3	1	—	—	—	—	—	—	—	—	—	—	—	—	4	2
Incorrectly recorded	—	—	—	—	1	1	—	—	—	—	—	—	—	—	2	2
Left	101	13	—	—	1	1	22	6	7	1	—	—	9	1	361	63
Firm out of business	14	3	—	—	—	—	—	—	—	—	—	—	—	—	15	4
Classification changed	—	—	—	—	—	—	—	—	—	—	1	1	—	—	22	3
ADVERTISED IN 1931	177	10	—	—	134	11	1474	155	1	1	—	—	20	1	2692	226
PENDING	1	1	1	1	—	—	—	—	—	—	—	—	—	—	41	4

*Includes 8 cases in 5 firms where adjustment was reported, but reinspection still showed non-compliance.

**See notes on Table 6.

years, 504 new cases were found in 42 firms. The majority of these, 163 cases in five firms came under the men's furnishings decree. Most of the remaining cases were in muslin underwear establishments, laundries, men's clothing, paper box and women's clothing establishments.

There were some additional cases in one or more establishments under each of the following decrees: candy, electrical equipment and retail stores.

Adjustments

As the greater number of these cases were in firms that had never complied, adjustments were secured in comparatively few instances. In 19 cases in seven firms wages were raised to meet the provisions of the decree. Adjustment was promised in one additional case.

In 28 cases in five establishments employees who were receiving below the minimum left, and 30 firms in which there were 413 cases of non-compliance were advertised.

Cases Pending

There were pending at the close of the year 33 cases in three firms. These include 28 cases in two men's clothing establishments and five cases in one muslin underwear establishment.

Disposition of Cases in the Regular Inspection Work

In 293 establishments, 2,987 cases of non-compliance were found. Of this number, 1,754 were settled or adjustment was promised before the close of the year. Some of the remaining cases will doubtless be adjusted in connection with the reinspections which will be made after the regular inspection work has been completed.

Adjustments

With respect to the cases settled, wages were raised for 542 women in 100 establishments. In 79 other cases women were enabled to earn the minimum on piece work or by reduction of hours or change of work. Adjustment was promised or reported in 250 additional cases.

There were 33 women in 13 establishments who came under the piece rate ruling. This ruling provides that in the case of experienced operators, where the great majority on a given operation are earning the minimum or over, the rates are considered in accordance with the decree. Nine women in eight establishments were covered by special license provisions.

Cases pending

At the close of the year there are pending from the regular inspection work, 1,233 cases in 99 establishments. These are mainly under decrees where the inspection is still in progress as brush; electrical equipment and supplies; jewelry; knit goods; paper box; stationery goods and envelopes; and toys, games and sporting goods decrees; or where there are new firms, as under the retail store decree.

A number of cases pending under the clothing decrees are in establishments which have recently come into Massachusetts from other states and located in the textile centers. The low wages paid by a number of these concerns is creating a problem.

SUMMARY

The entire number of cases handled during the year include, in addition to those in connection with the regular inspection program, the cases pending from previous years and represent approximately 28,000. The total non-compliance cases are 2,987 from the regular inspection work with 3,424 pending at the beginning of the year and 504 new cases found in the reinspection of these firms. The entire number is 6,915.

Of this number, 5,608 have been settled or adjustment promised before the close of the year. Wage adjustments or equivalent arrangement enabling the employees to earn the minimum were effected in 917 cases. In a number of additional instances adjustments were promised. There were 3,556 cases in 280 firms advertised. There are pending at the close of the year 1,307 cases. A large part of these are under decrees listed for publication.

Table 5. — *Disposition of New Cases of Non-compliance in Firms where Cases were Pending from Previous Years*
(C — Cases; E — Establishments)

SITUATION AND DISPOSITION OF CASES	Candy		Electrical Equip-ment and Supplies		Laundry		Men's Clothing		Men's Furnish-ings		Muslin Under-wear		Paper Box		Retail Store		Women's Clothing		Total	
	C.	E.	C.	E.	C.	E.	C.	E.	C.	E.	C.	E.	C.	E.	C.	E.	C.	E.	C.	E.
Number of cases of non-compliance . . .	1	1	6	1	105	14	47	4	163	5	132	10	19	3	11	3	20	1	504	42
ADJUSTMENT*																				
Wages raised . . .	—	—	—	—	6	2	—	—	—	—	1	1	—	—	11	3	1	1	19	7
Earning minimum on piece work . . .	—	—	—	—	—	—	—	—	6	1	2	—	—	—	—	—	—	—	8	3
Adjustment promised . . .	—	—	—	—	1	1	—	—	—	—	—	—	—	—	—	—	—	—	1	1
Covered by piece rate ruling . . .	—	—	—	—	—	—	—	—	—	—	1	1	—	—	—	—	—	—	1	1
Left . . .	—	—	—	—	1	1	5	1	1	1	12	1	—	—	—	—	9	1	28	5
Not under decree . . .	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1
ADVERTISED 1931 . . .	1	1	6	1	96	10	14	2	156	4	111	8	19	3	—	—	10	1	413	30
PENDING . . .	—	—	—	—	—	—	28	2	—	—	5	1	—	—	—	—	—	—	33	3

*See notes on Table 6.

Table 6. — *Summary of Adjustments in Connection with Inspections in 1931 under Massachusetts Minimum Wage Decrees*
(C — Cases; E — Establishments)

SITUATION AND DISPOSITION OF CASES	Root and Shoe Cut Stock and Findings ¹		Bread and Bakery ¹		Brush ²		Candy ³		Canning, Preserv- ing and Minor Lines ¹		Corset* ²		Druggists' Prepara- tions		Electrical Equip- ment and Supplies ²		Jewelry and Related Lines ²		Knit Goods ²		Laundry ⁴	
	C.	E.	C.	E.	C.	E.	C.	E.	C.	E.	C.	E.	C.	E.	C.	E.	C.	E.	C.	E.	C.	E.
Records for Tabulation and estab- lishments represented . . .	73	3	247	11	16	3	7,767	127	87	9	327	3	760	53	713	15	161	12	770	6	1,232	95
Compliance at inspection . . .	60	3	185	11	15	3	7,203	126	71	9	308	3	721	51	643	12	144	12	607	6	1,138	94
Establishments with full compli- ance and cases . . .	34	1	52	8	12	2	3,371	69	67	6	288	2	259	41	296	7	92	8	33	2	934	77
Cases of non-compliance . . .	13	3	62	2	1	1	564	43	16	3	19	1	39	11	70	8	17	4	163	3	94	20
ADJUSTMENT ²																						
Wages raised . . .	2	1	9	1	—	—	215	21	2	1	—	—	16	6	2	1	2	1	—	—	40	11
Earning minimum on piece work . . .	—	—	—	—	—	—	13	4	—	—	—	—	—	—	—	—	—	—	—	—	6	1
Hours reduced; change of work . . .	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Adjustment promised or re- ported ⁶ . . .	—	—	—	—	—	—	31	7	10	1	—	—	1	1	10	4	—	—	2	1	8	3
Covered by piece rate ruling ⁷ . . .	—	—	—	—	—	—	23	9	—	—	—	—	1	1	—	—	1	1	—	—	—	—
Special license, special license type or similar case . . .	—	—	—	—	—	—	1	1	—	—	—	—	—	—	—	—	—	—	—	—	1	1
Incorrectly recorded . . .	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Left ⁸ . . .	—	—	—	—	—	—	46	10	—	—	—	3	4	1	—	—	—	—	—	—	5	3
Discharged or laid off . . .	—	—	—	—	—	—	1	1	—	—	—	1	1	—	—	—	—	—	—	—	1	1
Firm out of business . . .	—	—	—	—	—	—	39	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Not under decree . . .	—	—	—	—	—	—	—	—	4	1	—	—	—	—	—	—	—	—	—	—	—	—
Classification changed . . .	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
ADVERTISED . . .	11	2	—	—	—	—	18	3	—	—	—	16	1	—	30	1	—	—	—	—	8	2
PENDING [†] . . .	—	—	53	1	1	1	177	10	—	—	—	—	—	—	28	2	14	2	161	2	25	3

¹ Inspection either on complaint or in connection with other inspection work, or new firms.

² Work in process at close of present year.

³ Work under this decree represents completion of inspection initiated previous year and new inspection now in process.

⁴ Work initiated previous year.

⁵ Does not include cases adjusted before agent's visit.[†]

⁶ Adjustment promised or reported by firms. Agent has not revisited.

⁷ Piece rate ruling: — Where great majority of employees on given process are making minimum or over, the rates are considered as conforming with decree.

⁸ Some of those reported as left were probably discharged. This information, however, was not given to the investigator.

[†] Work under this decree represents one firm other than regular inspection.

The majority of the cases are adjusted on or before the date the decree becomes effective, so that many firms have full compliance at the inspection.

In addition to these are the cases listed as pending on Tables 4 and 5.

Table 6. — Summary of Adjustments in Connection with Inspections in 1931 under Massachusetts Minimum Wage Decrees—Concluded.

(C — Cases; E — Establishments)

SITUATION AND DISPOSITION OF CASES	Men's Clothing ¹		Men's Furnish- ings ¹		Millin- ery ¹		Muslin Under- wear ¹		Office Cleaners ¹		Paper Box ²		Retail Store ¹		Stationery Goods and Enve- lopes ²		Toys, Games, and Sport- ing Goods ²		Women's Clothing ¹		Total	
	C.	E.	C.	E.	C.	E.	C.	E.	C.	E.	C.	E.	C.	E.	C.	E.	C.	E.	C.	E.	C.	E.
Records for Tabulation and estab- lishments represented . . .	447	22	263	10	53	5	769	18	2,470	439	2,365	92	1,707	165	2,782	51	899	26	201	20	24,109	1,185
Compliance at inspection . . .	303	22	235	10	51	5	458	18	2,390	416	2,110	92	1,052	159	2,436	51	856	26	173	20	21,159	1,149
Establishments with full compli- ance and cases . . .	86	13	121	6	31	4	244	6	2,378	401	1,456	44	395	98	1,556	33	651	19	65	18	12,421	865
Cases of non-compliance . . .	144	8	28	3	2	1	311	17	80	32	255	31	692	73	346	19	43	6	28	4	2,087	293
ADJUSTMENT ³																						
Wages raised . . .	2	2	—	—	—	—	14	3	32	13	19	9	122	22	58	5	3	1	4	2	542	100
Earning minimum on piece work . .	8	2	—	—	—	—	10	3	33	12	9	1	—	—	—	—	—	—	—	—	46	11
Hours reduced; change of work . .	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	33	12
Adjustment promised or re- ported ⁴ . . .	—	—	3	1	—	—	—	—	1	1	26	6	37	5	105	8	16	3	—	—	250	41
Covered by piece rate ruling ⁵ . .	—	—	—	—	—	—	—	—	—	—	8	2	—	—	—	—	—	—	—	—	33	13
Special license, special license type or similar case . . .	—	—	—	—	—	—	—	—	—	—	5	5	2	1	—	—	—	—	—	—	9	8
Incorrectly recorded . . .	—	—	—	—	2	1	—	—	10	4	—	—	—	—	—	—	—	—	—	—	12	5
Left ³ . . .	6	3	—	—	—	—	49	9	1	1	5	3	70	18	102	5	4	2	16	2	311	58
Discharged or laid off . . .	—	—	—	—	—	—	—	—	1	1	—	—	—	—	1	1	—	—	2	1	41	3
Firm out of business . . .	—	—	—	—	—	—	—	—	—	—	—	—	2	1	1	1	—	—	—	—	10	4
Not under decree . . .	—	—	3	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	11	1
Classification changed . . .	—	—	11	1	—	—	—	—	—	—	—	—	63	3	—	—	—	—	—	—	451	24
ADVERTISED . . .	128	5	11	1	—	—	150	4	—	—	—	—	—	—	—	—	—	—	—	—	11	1
PENDING ⁴ . . .	—	—	—	—	—	—	88	7	2	2	183	16	396	44	79	5	20	2	6	2	1,233	99

¹ Inspection either on complaint or in connection with other inspection work, or new firms.² Work in process at close of present year.³ Work under this decree represents completion of inspection initiated previous year and new inspection now in progress.⁴ Work initiated previous year.⁵ Does not include cases adjusted before agent's visit.[†]⁶ Adjustment promised or reported by firms. Agent has not revisited.⁷ Piece rate ruling: — Where great majority of employees on given process are making minimum or over, the rates are considered as conforming with decree.⁸ Some of those reported as left were probably discharged. This information, however, was not given to the investigator.[†] Work under this decree represents one firm other than regular inspection.[‡] The majority of the cases are adjusted on or before the date the decree becomes effective, so that many firms have full compliance at the inspection.[‡] In addition to these are the cases listed as pending on Tables 4 and 5.

The commission during the year has been giving special attention to the industries coming into the commonwealth especially in textile centers and paying a low rate of wages to employees, an outline of which was given in the report of last year under the heading of "Non-compliances in new establishments". Many of these industries come under the provisions of the existing decrees and in one occupation, that of the pocket-book and leather-goods specialties, a wage board has been authorized during the year.

As a result of the vigorous action of the commission through inspection, reinspection, conferences and publications, some adjustments have been secured and in other instances adjustment promised. While the activities of the commission have borne results and give hope of ultimately securing compliance, nevertheless in spite of such activities the continued period of depression presents many obstacles and difficulties.

REPORT OF THE DIVISION OF STANDARDS

FRANCIS MEREDITH, *Director of Standards*

LEGISLATION ENACTED IN 1931

During the annual session of the General Court the following statutes of interest to this division and to local sealers of weights and measures were enacted, amended, or repealed:

Chapter 49, acts of 1931, inserting a new section (14A) in chapter 98 of the General Laws, provides that the director of standards shall prescribe regulations, including specifications and tolerances, governing the sealing, by the manufacturer, of glass bottles or jars intended for use in the sale of lubricating oil. It also limits the capacities of such bottles to two quarts, one quart or one pint, Massachusetts standard liquid measure and empowers the director to authorize the sealing by the manufacturer thereof, upon his written agreement to comply with the regulations, and to revoke such authority at any time for cause.

Chapter 101, General Laws, relating to hawkers' and pedlers' licenses, was amended as follows: Section 17 was amended by chapter 278, acts of 1931, so as to permit peddling of religious publications without license, and also by chapter 429, acts of 1931, so as to permit cities and towns to license hawkers and pedlers of meats, butter, cheese, fish, and fresh fruit or vegetables whether applicants for such license are adults or minors. Section 33 of chapter 101 was amended by section 115, chapter 394, acts of 1931, by striking out the words "overseers of the poor" and substituting therefor the words — "board of public welfare."

Section 17A, chapter 98, General Laws, inserted by chapter 139, acts of 1930, was amended by chapter 273, acts of 1931, by striking out the words "state highway" and substituting therefor the words "public way", so as to prohibit solicitation of alms, contributions, subscriptions, etc., or the sale of any merchandise, except newspapers, from the occupant of a vehicle stopped on any public way by traffic signals, or by direction of an officer. This section also prohibits the signaling or stopping of a vehicle upon any public way for the purpose of such solicitation or sale.

Chapter 426, acts of 1931, eliminated several obsolete provisions from the General Laws including the following:

Section 179, chapter 94, providing for appointment of weighers of boilers and heavy machinery, was repealed by section 11.

Section 239, chapter 94, providing for appointment of inspectors of coal in cities and towns, was repealed by section 12.

Section 269, chapter 94, providing for appointment of surveyors of marble, soapstone and freestone in cities and towns was repealed by section 13.

Section 57, chapter 98, was amended by section 58, chapter 426, by striking out all after the word "director" in the second line.

Sections 63-64, chapter 253, relating to millers' scales and "toll" for grinding grain, were repealed by section 39, chapter 426.

NEW EQUIPMENT FOR TESTING HEAVY CAPACITY SCALES

Scales having more than twice the weighing capacity of those formerly in use have been installed at various places throughout the commonwealth during the

past few years since motor trucks have generally superseded horse-drawn vehicles in the transportation of coal, materials used in building and road construction, and many other commodities, the price or transportation charges of which are based upon weight.

Scales of this type are of such importance to commerce and industry, and the effects of error may be so far-reaching that the greatest possible accuracy is not only desirable but, in many cases, absolutely necessary.

Comparative tests made by weighing the same load upon several scales have shown a wide variation due to the utter inadequacy of tests made by local sealers whose equipment includes but 1,000 to 2,000 pounds of standard weights with which to detect errors which might exist in scales having capacities of 40,000 to 200,000 pounds.

Should cities and towns undertake to provide adequate apparatus, it was evident that such independent action by the many municipalities would result in an enormous and unnecessary duplication of expense. Upon recommendation of the director, a special appropriation of \$7,000 was made so as to provide the division of standards with equipment which could be used in cooperation with local sealers in making necessary tests in the most economical and efficient manner.

This equipment is now available and includes a specially designed Autocar truck, seven ton capacity, six cylinder, 125 horse-power, 160-inch wheel-base, 85-inch tread, equipped with two sets of brakes, operating independently, a Westinghouse airbrake operating on all four wheels and a hand-brake contacting with the propeller-shaft. The tires are 12-ply heavy-duty balloon, 10.50 by 24, single forward and dual on rear. Interchangeable disc wheels make it possible to place the spare on any wheel in case of damage to a tire. A 40-gallon fuel tank is mounted upon side of frame, with gasoline gauge attached to instrument board. The truck has a DeLuxe cab and complete electrical equipment.

The body of the truck is 7 feet by 11 feet, with removable sides 14 inches in height, and is made of 3/16-inch steel. The floor, upon which the standard weights are placed, consists of one inch oak flooring bolted to the steel floor. All joints are electrically welded. A "Walden top", sliding on rails on either side of the truck, may be folded back or used to cover the weights by merely pushing or pulling one of the bows upon which the canvas cover is mounted. Headlights, side lights, radiator and bumper are chromium-plated. Truck is painted with black Duco with red Duco running gear and red and black stripes.

The tare weight of the truck, including gasoline, oil and water, approximates 15,000 pounds. Small standard weights are available by means of which this weight can be made exact instead of approximate. The load consists of another 15,000 pounds, in thirty 500-pound standard units, making a gross load of 30,000 pounds which is the maximum load permissible upon the highways in this Commonwealth for vehicles with two axles.

The standard 500-pound weights are manipulated by means of a Mead-Morrison heavy-duty truck winch and crane with a 12-foot boom which swings in a half-circle. The winch is driven from the transmission by means of a flexible power take-off. The crane is entirely power-operated, the weights being raised or lowered, or moved in or out on the boom by power from the motor, while the boom may be moved from side to side by means of a wheel-operated worm-gear. One man, standing beside the crane, can safely operate it with little effort and without moving from his position.

The accessories include a hydraulic jack and two screw jacks, the latter being used under either side of the chassis to keep the truck stationary when the boom is swung over the side to pick up the test weights.

With this equipment, it is possible to test a 20-ton scale to 75 per cent of its capacity and there will be no doubt of the accuracy of scales which pass this test. Being especially designed for economical and efficient operation, with a minimum of time and labor, it has already attracted favorable notice from officials of sister States who have similar problems to meet.

DIVISION PUBLICATIONS

Publications issued during the year included:

1. Report of the Director of Standards for the year ending November 30, 1930.

2. Bulletin No. 27, containing the statutory provisions and revised regulations governing the manufacture and sale of bread and the marking of packages containing food.

3. Regulations governing the sealing by the manufacturer of glass bottles or jars intended to be used in the sale of lubricating oils.

4. Transient Vendors' License Law, as amended to date.

5. Hawkers' and Pedlers' License Law, as amended to date.

6. Fees for Hawkers' and Pedlers' licenses revised in accordance with the population of cities and towns, as determined by the Fifteenth Census of the United States in 1930.

CLINICAL THERMOMETERS

Records of all shipments of clinical thermometers bearing the manufacturer's seal are required to be filed with the director of standards regardless of the destination of such shipments. According to these records 179,148 of these instruments were shipped by manufacturers during the past year, of which 106,596 were sold in Massachusetts and 72,602 in other states and in the Dominion of Canada.

Three additional manufacturers were authorized to affix a MASS SEAL mark upon their products.

The authority of two others was temporarily suspended when clinical thermometers of their manufacture taken from jobbers and hospitals for test were found to be below the required standard. During the period of suspension these manufacturers were required to submit all clinical thermometers to this division for test and certification, and their authority to seal was ultimately restored when it was demonstrated that they were able to achieve and maintain the required standards of accuracy.

LABORATORY WORK *Calibration of State Standards for Cities and Towns*

ARTICLE	Tested	Adjusted	Sealed	Condemned
Avoirdupois weights	534	305	532	2
Metric weights	55	—	55	—
Apothecary weights	48	1	48	—
Glass graduates	14	—	14	—
Liquid measures	6	—	6	—
Linear measures	1	—	1	—
Totals	658	306	656	2

Clinical Thermometers

DESCRIPTION	Tested	Passed	Rejected	Per Cent Passed
Massachusetts seal	4,108	3,719	389	90.53
Unsealed	5,144	4,359	785	84.73
Totals	9,252	8,078	1,174	87.31

*Cans, Cartons and Other Containers, Measures and Weighing and Measuring Devices
Submitted in Connection with Manufacturers' Applications for Approval,
or for Authority to Affix the Manufacturers' Seal Thereon*

ARTICLE	Tested	Accurate	Inaccurate
Cartons to be used in the sale of ice cream and other specified commodities	173	111	62
Wholesale ice cream cans	7	7	—
Wholesale milk cans	20	18	2
Milk jars (glass)	4	4	—
Milk jars (paper)	2	2	—
Lubricating-oil jars	31	25	6
Glass graduates	20	8	12
Liquid measures	32	25	7
Slot weighing machines	17	4	13

Slot vending machines	6	4	2
Counter scales	2	1	1
Computing scales	1	1	—
Computing scale charts	5	3	2
Totals	320	213	107

Miscellaneous Tests

ARTICLE	Tested	Accurate	Inaccurate
Automatic test-measures for gasoline pumps	43	42	1
Apple-sizing rings	6	6	—
Avoirdupois weights	40	37	3
Berry baskets	8	6	2
Blood-pressure gauge	1	—	1
Dry-capacity measures	4	2	2
Dynamometers	8	2	6
House thermometers	1	—	1
Incubator thermometers	2	—	2
Laboratory thermometers	1	1	—
Metric weights	43	42	1
Totals	157	138	19

Laboratory activities also comprised the measurement of 48,114½ yards of sewing thread; screening five samples of anthracite coal to determine size; weighing 14 packages of foods for manufacturers to determine proper quantity markings; testing three metal forms used by manufacturers to determine accuracy of cartons to be used as approved measures; testing four liquid measures to be used as manufacturer's standards in determining accuracy of commercial measures; weighing 48 loaves of bread collected by agents of the United States department in connection with a special investigation; testing capacity of container used in determining compensation for chlorination of clams; testing two "water-proofed" bricks for state quartermaster to determine absorption of moisture by weighing before and after overnight submersion in water; assisting representatives of department of public works and the transit commission in comparing six surveyors' tapes with the state standard.

FIELD WORK OF INSPECTORS

The following compilation illustrates the varied nature of the activities of the inspectors in the field:

Number of Inspections. Stores, 311; gasoline pumps, 253; pedlers, 310; transient vendors, 275; net weight markings, 41; ice scales and price lists, 12; coal weight certificates, 33; total 1,235.

Weighing and Measuring Devices. Sealed, 1,725; unsealed, 1,057; total inspected, 2,782.

Clinical Thermometers. Sealed, 19; unsealed, 2; total inspected, 21.

COMMODITY	<i>Reweighings</i>			
	Number	Correct	Under	Over
Coal (loads)	34	3	10	21
Packages of food, etc.	733	495	92	146
Totals	767	498	102	167

ARTICLE	<i>State Institutions</i>			
	Tested	Adjusted	Sealed	Condemned
Scales	248	25	211	37
Weights	721	80	706	15
Liquid measures	13	—	13	—
Gasoline pumps	5	1	5	—
Totals	987	106	935	52

Applications for certificates of fitness for appointment as measurers of leather were received from 36 persons. Certificates were issued to 28 of these applicants who passed a satisfactory examination, while eight failed to qualify.

A number of complaints involving short weight or measure and violations of the hawkers' and pedlers' and transient vendors' license laws were received and investigated. There were 65 gasoline, fuel oil and grease measuring devices submitted in connection with applications for approval of type under chapter 72, acts of 1925. These were carefully examined as to design and construction, and were tested for accuracy under varying working conditions by inspectors in the field whose suggestions, in many cases, resulted in improvements and simplification before the devices were finally approved.

PROSECUTIONS

Inspectors of this division prosecuted 57 complaints in the courts during the year. There were 55 convictions and fines amounting to \$1,804 were imposed. One appealed case was not prossed in the Suffolk superior court.

An outstanding case was one involving a joint prosecution of two partners in a retail coal business, charged with giving insufficient weight in the sale of coal to the public welfare department of one of our municipalities. The coal purporting to be 60 tons, had been delivered to a local institution when our inspector was informed of suspected short weight and requested to investigate. He spent two days weighing the coal upon a portable scale and found a deficiency of nearly 13½ tons. In court, both partners were convicted and each paid a fine of \$500.

Following is a summary of prosecutions made by inspectors and disposition of the various cases:

Court Cases

NATURE OF OFFENCE	Number of complaints	Convicted	Discharged	Pleaded nolo	Dismissed without finding	Filed	Fines imposed	Appealed
Attempt to give insufficient weight of turkey	5	3	1	—	1	1	\$40	—
Giving insufficient weight of kidney beans	1	1	—	—	—	1	—	—
Giving insufficient weight of potatoes	1	1	—	—	—	1	—	—
Giving insufficient weight of coal	2	2	—	—	—	—	\$1,000	—
Giving insufficient weight of coal briquettes	2	2	—	—	—	—	50	—
Failure to deliver weight certificate with briquettes	3	3	—	—	—	1*	95	—
Larceny of ham	1	1	—	—	—	—	50	—
Using unsealed scale	2	2	—	—	—	1	50	—
Conducting transient business without license	23	19	1	2	1	7	289	4
Peddling without license:—								
Balloons	1	1	—	—	—	—	5	—
Bread	1	1	—	—	—	1	—	—
Coal	2	2	—	—	—	—	20	—
Confectionery	2	2	—	—	—	2	—	—
Fuel oil	1	1	—	—	—	—	15	—
Household goods	2	2	—	—	—	1	10	—
Ice cream sandwiches	2	2	—	—	—	—	30	1
Meats	2	2	—	—	—	—	75	—
Wreaths	1	1	—	—	—	—	5	—
Possession of another's license	2	1	—	1	—	—	60	—
Furnishing goods to unlicensed minor	1	1	—	—	—	—	10	—
Totals	57	50	2	3	2	16	\$1,804	5

*Given suspended sentence of 3 months.

OFFICE WORK

Weighing and measuring devices approved by the director as to design and construction, under chapter 72, acts of 1925, included three truck-tank meters, six gasoline meters, 30 gasoline metering systems, one grease meter, 25 grease-measuring devices, four liquid measures, four automatic test measures, and 23 scales.

Under section 283, chapter 94, General Laws, eight coin-operated person weighing scales, two confectionery-vending devices, one cigarette-vending device, one gum-vending device, and one amusement device were approved.

Under section 13, chapter 98, General Laws, seven manufacturers were authorized to seal 59 additional types of clinical thermometers of their manufacture.

Under section 15, chapter 98, General Laws, two manufacturers were authorized to seal glass milk jars of their manufacture.

Under section 18, chapter 98, General Laws, one manufacturer was authorized to seal certain wholesale milk cans of his manufacture.

Under section 20, chapter 98, General Laws, one manufacturer was authorized to seal ice cream cans of his manufacture.

Under section 22, chapter 98, General Laws, paper or fibre cartons submitted by six manufacturers were approved for use as measures in the sale of certain specified commodities.

Under chapter 49, Acts of 1931, the director prescribed regulations governing the sealing of lubricating-oil bottles by the manufacturer and authorized seven manufacturers to seal such bottles.

As shown by the detailed financial statement included in this report, a total of \$141,499.62 was received from all sources, including fees for hawkers' and pedlers' and transient vendors' licenses, and for testing clinical thermometers. Cash amounting to \$1,000 was deposited and surety bonds aggregating \$277,000.00 were filed with the director by applicants for transient vendors' licenses, to be subject to legal claims arising in connection with the transient business conducted under such license.

LICENSES

Transient Vendors

The number of persons licensed as transient vendors was 556 and the fees received from them amounted to \$13,900. There were 23 prosecutions for conducting a transient business without license.

Hawkers and Pedlers

There were 6,475 hawkers' and pedlers' licenses for which fees were received, an increase of 56 over the preceding year. Special licenses were issued without fee to 501 disabled veterans of the World War, 75 more than were issued in the previous year.

EDUCATIONAL AND COOPERATIVE ACTIVITIES

Besides the dissemination of information through the publications of the division, local chambers of commerce and other organizations have been addressed at various times by the director and by Inspectors A. L. Jones and J. P. McBride upon the subject of "Transient Vendors" and other matters of interest.

The director was in attendance at the 24th National Conference on Weights and Measures held June 2 to 5 at the United States bureau of standards, Washington, D. C.

Inspector James J. Dawson represented the Massachusetts association at the annual convention of the New York State Association of Sealers of Weights and Measures held at Canton, N. Y., July 21 to 24.

The annual convention of the Massachusetts Association of Sealers of Weights and Measures held at Westfield, October 8 and 9, was attended by the director and all inspectors. A large number of local sealers were present together with representatives from other states and the United States bureau of standards. Scores of pupils of the Westfield public and parochial high schools participated in the annual prize essay contest upon "The Value of a Sealer of Weights and Measures to a Community" and it is worthy of note that all three prizes were awarded to children of foreign parentage, each of whom covered the subject in a logical and convincing manner.

LOCAL SEALERS OF WEIGHTS AND MEASURES

Sealers of weights and measures for the towns of Hinsdale, Pepperell, Peru, Rockland and Tyngham failed to file an annual report with the director in compliance with section 37, chapter 98, General Laws, while reports of the sealers of Freetown, Stow and Tisbury were received too late for inclusion in the following tabulation:

SUMMARY OF LOCAL SEALERS' WORK

ARTICLE	Adjusted	Sealed	Non-sealed	Con-demned
<i>Scales</i>				
Platform (over 5,000 lbs.)	441	2,758	33	163
Platform (100 to 5,000 lbs.)	5,093	23,237	702	662
Counter (100 lbs. or over)	188	1,464	52	39
Counter (under 100 lbs.)	2,235	17,879	269	329
Beam (100 lbs. or over)	154	1,537	48	90
Beam (under 100 lbs.)	60	734	19	15
Spring (100 lbs. or over)	277	5,834	20	297
Spring (under 100 lbs.)	4,919	29,149	150	1,248
Computing (100 lbs. or over)	54	541	5	25
Computing (under 100 lbs.)	4,650	23,599	162	1,140
Personal weighing (slot)	126	3,832	13	452
Prescription	131	2,281	14	59
Jewellers'	2	87	2	5
Totals	18,330	112,932	1,489	4,524
<i>Weights</i>				
Avoirdupois	6,034	145,911	723	661
Apothecary	297	20,508	—	444
Metric	97	8,252	255	50
Troy	34	1,613	42	—
Totals	6,462	176,284	1,020	1,155
<i>Capacity Measures</i>				
Vehicle tanks (compartments)	—	2,021	—	50
Liquid measures	394	45,732	148	672
Ice cream cans	19	1,008	—	5
Glass graduates	—	822	—	17
Oil jars	—	38,925	24	210
Milk jars	—	984	—	5
Dry measures	—	916	—	33
Fuel baskets	—	2,832	—	50
Totals	413	93,240	172	1,042
<i>Automatic Measuring Devices</i>				
Gasoline pumps	3,581	18,703	667	1,146
Gasoline meters	2,516	8,862	20	663
Kerosene pumps	158	3,070	274	98
Oil pumps (lubricating)	2,650	11,518	6,727	227
Grease-measuring devices	108	695	37	43
Molasses pumps	62	1,114	70	2
Quantity stops (on measuring pumps)	10,717	120,583	—	—
Leather measuring machines	—	1,520	—	21
Totals	19,792	166,065	7,795	2,200
<i>Linear Measures</i>				
Yard sticks	—	8,121	—	197
Tapes	—	57	—	1
Taximeters	699	2,503	—	65
Cloth-measuring devices	—	752	5	16
Totals	699	11,433	5	279
Grand totals	45,696	559,954	10,481	9,200
Sealing fees collected	\$59,586.83			
Adjusting charges	5,219.12			
Total collected	\$64,805.95			

SUMMARY OF LOCAL SEALERS' WORK — *Concluded*
Reweighings and Remeasurements

COMMODITY	Number of Reweighings, etc.	Correct	Under	Over
Bread	34,795	25,460	3,380	5,955
Butter	20,874	17,480	1,635	1,759
Charcoal (in paper bags)	998	933	14	51
Coal (loads)	1,488	366	228	894
Coal (in paper bags)	10,251	6,568	880	2,803
Coke (in paper bags)	783	729	6	48
Confectionery	6,293	5,605	123	565
Dry commodities (groceries, etc.)	30,583	25,227	2,653	2,703
Dry goods	128	119	4	5
Flour	8,569	6,045	1,067	1,457
Fruit and vegetables	16,286	10,670	3,276	2,340
Grain and feed	661	566	23	72
Hay	406	301	102	3
Ice	1,065	532	105	428
Liquid commodities	4,211	3,749	180	282
Meats and provisions	14,752	12,357	861	1,534
Wood (cord)	159	138	15	6
Wood (kindling)	713	709	3	1
Wood (in paper bags)	2,339	2,291	10	38
Miscellaneous	4,211	3,749	180	282
Totals	159,565	123,594	14,745	21,226

The annual reports also show that local sealers measured 94 cords of wood and three tank-loads of gasoline, and weighed 2,221 loads of coal, three loads of coke, 357 loads of sand and gravel, 128 loads of hay and grain, 59 bales of hay and one load of cement for their respective municipalities; inspected 10,844 clinical thermometers, 1,840 coal weighers' certificates, 2,139 ice scales, 556 junk scales, 2,950 pedlers' scales, 621 transient vendors, 5,444 pedlers' licenses, 29,263 markings of food packages, 15,658 weight statements on bread, 15,850 ice cream cans, 3,453 wholesale milk cans, 10,198 milk jars, 13,993 lubricating-oil bottles, 8,766 paper or fibre cartons and 9,277 miscellaneous items.

They also tested 3,660 berry baskets, 2,489 cartons, 459 climax baskets, 5,462 milk jars, 893 lubricating-oil bottles, 442 standard boxes for farm produce, 169 United States standard barrels, 3,557 re-tests of gasoline measuring devices after sealing, and also made 1,818 other miscellaneous tests.

PROSECUTIONS BY SEALERS

NATURE OF OFFENCE	Number of complaints	Convicted	Discharged	Pleaded nolo	Filed	Defaulted	Fines imposed
Giving insufficient weight of turkey	3	—	—	—	—	—	—
Giving insufficient weight of coal	12	11	—	1	—	—	\$445
Giving insufficient weight of meat	3	3	—	—	—	—	85
Giving insufficient weight of salad	1	1	—	—	—	—	50
Giving insufficient weight of ice	2	2	—	—	—	—	—
Giving insufficient weight (miscellaneous)	2	2	—	—	—	—	—
Giving insufficient measure of turpentine	1	1	—	—	—	—	10
Giving insufficient measure of ice cream	1	1	—	—	—	—	10
Giving insufficient measure of fuel oil	1	1	—	—	—	—	25
Giving insufficient measure of linoleum	1	1	—	—	—	—	5
Giving insufficient measure (miscellaneous)	2	2	—	—	1	—	5
Failure to issue coal weight certificate	2	1	1	—	—	—	25
Refusing to exhibit coal weight certificate to sealer	1	1	—	—	—	—	25
Selling fuel in bags not properly marked	1	1	—	—	—	—	3
Failure to supply scales on ice vehicle	2	2	—	—	1	—	10
Failure to post price-list of ice on vehicle	3	3	—	—	1	—	15
Failure to file price-list of ice with sealer	2	2	—	—	2	—	—
Sale of unmarked loaves of bread not of standard weight	5	4	—	1	—	—	156

PROSECUTIONS BY SEALERS — *Continued*

NATURE OF OFFENCE	Number of complaints	Convicted	Discharged	Pleaded nolo	Filed	Defaulted	Fines imposed
Using false scale	5	4	—	1	1	—	\$55
Using condemned scale	2	2	—	—	1	—	10
Using unsealed scale	10	10	—	—	2	—	65
Conducting transient business without license	2	2	—	—	—	—	85
Peddling bakery products without license	5	5	—	—	—	—	60
Peddling coal without license	4	4	—	—	—	—	75
Peddling flowers without license	4	4	—	—	—	—	25
Peddling hams without license	1	1	—	—	—	—	10
Peddling wreaths without license	1	1	—	—	—	—	5
Peddling without license (miscellaneous)	45	28	2	4	13	2	368
Employing minors to peddle without license	3	3	—	1	1	—	20
Furnishing minors with goods to peddle without license	4	2	2	—	2	—	—
Peddling under another's license	3	3	—	—	1	—	55
Not displaying license plates on vehicle	3	3	—	—	1	—	60
Peddling jewelry contrary to law	3	3	—	—	2	—	75
Totals	140	114	8	8	33	2	\$1,837

FINANCIAL STATEMENT OF THE DIVISION OF STANDARDS
Receipts

1,467 State (hawkers' and pedlers') license fees	\$73,350.00
2,069 County (hawkers' and pedlers') license fees	18,512.00
901 City (hawkers' and pedlers') license fees	23,410.00
917 Town (hawkers' and pedlers') license fees	10,214.00
556 Transient vendors' license fees	13,900.00
1,121 Transfer fees	1,121.00
Total receipts from license fees	\$140,507.00
Fees received for licenses not issued	25.00
Fees for testing clinical thermometers	476.65
Accumulation of badge account	250.00
Interest on deposits	231.72
Miscellaneous	9.25
Total receipts	\$141,499.62

Payments

To State Treasurer:		
1,467 State license fees	\$73,350.00	
2,069 County license fees	2,069.00	
901 City license fees	901.00	
917 Town license fees	917.00	
556 Transient vendors' license fees	13,900.00	
1,121 Transfers	1,121.00	
Fees received for licenses not issued	25.00	
Fees for testing clinical thermometers	476.65	
Accumulation of badge account	250.00	
Interest on deposits	231.72	
Miscellaneous	9.25	
Total payments to state treasurer		\$93,250.62
To county treasurers	\$16,443.00	
To city treasurers	22,509.00	
To town treasurers	9,297.00	
Total paid and due to county, city and town treasurers		\$48,249.00
Total payments		\$141,499.62

Summary

Appropriation, personal services	\$32,880.00	
Expended	31,692.08	
		\$1,187.92
Appropriation, general expense	\$16,436.68	
Expended	15,180.02	
		1,256.66
Unexpended balance		\$2,444.58
Total income to the commonwealth from licenses, interest, fees for testing clinical thermometers, etc.		\$93,250.62
Total expenditures		46,872.10
Excess of income over expenditures		\$46,378.52

RETROSPECT

The division of standards was established under the consolidation of state departments which became effective December 1, 1919. The progress made since that time may be appreciated to some extent by a perusal of the following comparative figures:

	1919	1931	Increase
Number of inspectors employed	7	8	1
Number of clerical and laboratory employees	4	7	3
Motor vehicles owned	4	6*	2
Paid for inspectors' salaries	\$9,907.66	\$19,680.00	\$9,772.34
Paid for clerical and laboratory employees	3,511.95	7,812.08	4,300.13
Number of hawkers' and pedlers' licenses issued	1,560	6,976	5,416
Number of transient vendors' licenses issued	31	556	525
Total expenditures	\$25,778.54	\$39,255.47	\$13,476.93
Received from fees, etc., and paid to state treasurer	\$30,590.00	\$93,250.62	\$62,660.62
Received from pedlers' license fees and paid to treasurers of counties, cities and towns	\$10,578.00	\$48,249.00	\$36,671.00
Excess of income over expenditures	\$4,812.36	\$53,995.15	\$49,182.79

*Including new Auto-Car truck to be used with equipment for testing heavy capacity scales throughout the commonwealth.

REPORT OF THE DIVISION OF STATISTICS

ROSSELL F. PHELPS, *Director*

INTRODUCTORY

The principal branches of the work of the division of statistics during the year 1931 are discussed in this report. The statistical data here presented relate, for the most part, to the calendar year, but summary data for certain prior years are also included for purposes of comparison. The supervision of the four state public employment offices, although not a statistical function, still continued to be one of the duties of the director of this division, and the activities of these offices are also discussed in this report.

The trends of employment and earnings of wage-earners employed in the principal industries in Massachusetts during recent years are here discussed at some length, and in the appendix to this report there appear two series of index numbers and several charts, showing these trends for a series of years. As there is no separate, printed bulletin of this division in which these tables and charts have been published, it has seemed advisable to include them in this report for purposes of permanent record.

RECENT INDUSTRIAL CHANGES IN MASSACHUSETTS

Since 1920, the peak year of industrial activity in Massachusetts, there has been an almost continuous decline in the three principal groups of manufacturing industries, — the manufacture of cotton goods, woolen and worsted goods, and boots and shoes, — but such decline has by no means been confined to this State. During the years 1930 and 1931, as elsewhere throughout the United States, and, in fact, throughout the world, industrial depression has quite generally prevailed. Such depression, already evident in Massachusetts at the close of 1929, gained in intensity during the year 1930, and was even more pronounced in 1931.

In Table 1 data are presented, for the years 1913 to 1931, showing the average number employed in the manufacturing industries in the commonwealth, the average yearly earnings of those employed, the real value of their yearly earnings, and the relative cost of living in Massachusetts, based on wage-earners' budgets. Corresponding index numbers for each of these items are also presented. These index numbers have been computed, using as a base the respective data for the year 1913 = 100. These trends are shown, graphically, on the accompanying chart.

On reference to the table and the chart, it will be observed that 1920 was the year of greatest industrial activity in Massachusetts. Then followed the industrial depression beginning the latter part of 1920, and continuing through the year 1921 and the early portion of 1922. Since 1923, except for the years 1926 and 1929, when slight improvements were noted, the number employed in the manufacturing industries has steadily decreased. These changes are indicated by the index numbers of employment for the several years, and by the curve on the chart designated as "average number employed." The index number of employment for the year 1930 was 78.0, representing a reduction of 22 per cent in the average number employed in 1930, as compared with the average number employed in 1913, and in 1931, the index number was 66.9, representing a reduction of 33.1 per cent in the number employed in that year, as compared with the number employed in 1913. These decreases occurred, notwithstanding the fact that during the period 1913 to 1931 there was an increase in the population of Massachusetts of approximately 21 per cent.

Table 1. — Industrial Trends in Massachusetts, 1913-1931.

Employment in Manufacturing Industries.

Amount Paid in Wages in Manufacturing Industries.

Average Yearly Earnings of Wage-earners.

Real Value of Yearly Earnings of Wage-earners.

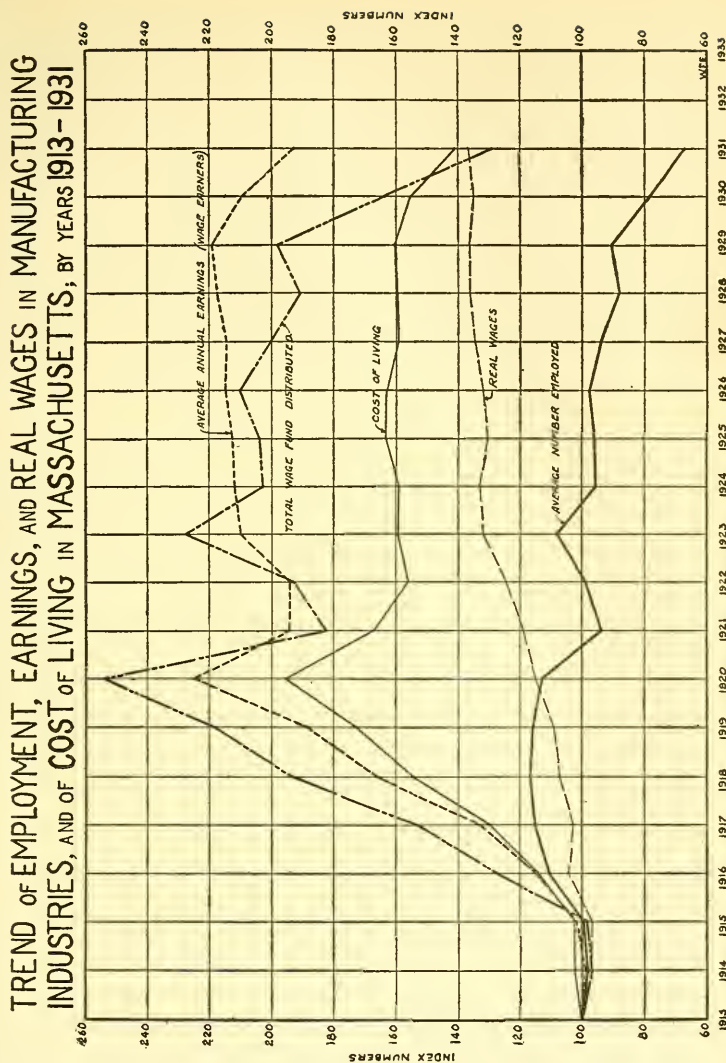
Cost of Living in Massachusetts, based on Wage-earners' Budgets.

(Base — 1913 = 100)

YEARS	AVERAGE NUMBER EMPLOYED IN MANUFACTURING		AMOUNT PAID IN WAGES DURING THE YEAR		AVERAGE YEARLY EARNINGS		INDEX NUMBERS	
	Absolute	Index Number	Dollars (000 omitted)	Index Number	Dollars	Index Number	Cost of Living ¹	Real Value of Average Annual Earnings
1913	616,927	100.0	\$351,300	100.0	\$569.43	100.0	100.0	100.0
1914	606,698	98.3	341,310	97.2	562.57	98.8	102.1	96.8
1915	596,348	96.7	346,243	98.6	580.61	102.0	102.2	99.8
1916	682,621	110.6	447,958	127.5	656.23	115.2	110.4	104.3
1917	708,421	114.8	537,145	152.9	758.23	133.2	129.5	102.9
1918	719,210	116.6	679,401	193.4	944.65	165.9	154.5	107.4
1919	713,836	115.7	766,623	218.2	1,073.95	188.6	172.6	109.3
1920	695,832	112.8	891,177	253.7	1,280.74	224.9	195.3	115.2
1921	579,071	93.9	641,361	182.6	1,107.57	194.5	163.7	118.8
1922	612,682	99.3	678,074	193.0	1,106.73	194.4	156.1	124.5
1923	667,443	108.2	799,363	227.5	1,197.65	210.3	159.4	131.9
1924	589,364	95.5	711,812	202.6	1,207.76	212.1	159.2	133.2
1925	591,438	95.9	716,156	203.8	1,210.87	212.7	163.3	130.3
1926	602,343	97.6	738,208	210.1	1,225.56	215.2	163.1	131.9
1927	578,068	93.7	705,930	200.9	1,221.19	214.5	159.4	134.6
1928	540,927	87.7	670,063	190.7	1,238.73	217.5	159.7	136.2
1929	557,198	90.3	694,488	197.7	1,246.39	218.9	160.6	136.3
1930	481,449	78.0	573,838	163.3	1,191.89	209.3	155.0	135.0
1931	412,602 ²	66.9 ²	452,184 ²	128.7 ²	1,095.93 ²	192.5 ²	141.1	136.4

¹ Compiled from reports of the Massachusetts Commission on the Necessaries of Life.

² Estimates based on results of "Monthly Surveys of Employment and Earnings in Representative Manufacturing Establishments."



Certain other significant facts are brought out by the data which appear in the table, and by the trend lines on the chart. Notwithstanding the fact that the number of persons employed in the manufacturing industries in Massachusetts has shown a marked decrease, nevertheless, the actual amount paid in wages to those employed in 1930 exceeded, by 63.3 per cent, the corresponding amount paid in 1913 to those then employed, and, in 1931, the amount paid in wages to those employed in that year (although the average number employed in 1931 was 33.1 per cent less than the average number employed in 1913) exceeded, by 28.7 per cent, the amount paid in wages to those employed in 1913.

It is also remarkable that, notwithstanding the great reduction in the number of persons employed in the manufacturing industries in the state in 1930 and 1931, as compared with the number employed in 1913, the average yearly earnings of those employed in 1930 exceeded the corresponding average yearly earnings of those employed in 1913 by 109.3 per cent, and, in 1931, a year of even greater depression, the average yearly earnings of those employed exceeded, by 92.5 per cent, the average yearly earnings of those employed in 1913.

In this connection it is also of interest to note that the *real* value, or purchasing power of the average annual earnings of wage-earners employed in 1931, has shown no marked change. The real value of the average annual earnings in any year is determined by dividing the index number representing the average yearly earnings, by the index number representing the cost of living. Although the cost of living in Massachusetts has fallen considerably from the peak in 1920, when the index number of the cost of living in Massachusetts, as computed by the Massachusetts Commission on the Necessaries of Life, stood at 195.3, as compared with the relative cost in 1913, the base year, the cost of living index number for 1931 was 141.1, or 41.1 per cent higher than the relative cost in 1913. The index number in 1931 representing the real value of the average annual earnings of wage-earners employed in the manufacturing industries in Massachusetts in 1931, was 136.4, or 36.4 per cent higher than the real value of the average earnings of those employed in 1913.

The depression which, at the close of December 1931, had continued for a period of more than two years, and which was at the lowest point reached at any time during the period, has resulted in reducing the standard of living of many families in which one or more of the members have been employed, and many of those who, in normal times, have not had occasion to apply for relief, have been forced to do so. There is, however, one consideration which serves to add some brightness to the picture, and that is that the *real* value, or purchasing power of the earnings of those who have been so fortunate as to have been retained in employment, has been maintained. The standard of living of the wage-earning population has been steadily increasing, and the index number representing the *real value* of the average annual earnings of those employed in the manufacturing industries in this state, during the period of nine years, 1923 to 1931, even including 1930 and 1931 (years of depression), has exceeded by at least 30 per cent, the real value of the average annual earnings of those employed in 1913.

During the latter half of the year 1931, reductions in the rates of compensation in some manufacturing industries have become effective, but in few instances have these reductions exceeded 10 per cent, and in a large number of cases where reductions have become effective, it has been with the understanding that these reductions are to be merely temporary, in order to enable the employers to continue to operate their plants, instead of dismissing all, or a considerable number of those employed by them.

I. STATISTICS OF LABOR

The statistics of labor collected by the division are published as "Labor Bulletins", or as "press announcements" in mimeographed form, containing the results of regular monthly surveys and special inquiries, which are issued in order that information of current interest may become immediately available.

LABOR BULLETINS

Labor Bulletin No. 163. Annual Directory of Labor Organizations in Massachusetts, 1931. This directory contains, as in previous editions, the name, location, time, and place of meetings, and the name and address of the secretary and business agent of each labor organization having its headquarters in Massachusetts, together with a list of all the national and international labor organizations having one or more affiliated local unions in the United States, and the names and addresses of their respective secretaries, insofar as these data could be ascertained.

The number of organizations listed in this directory was 1,593, of which 137 were national and international organizations, 65 were state and district councils, 105 were central labor unions and councils, and 1,286 were local unions.

Labor Bulletin No. 164. Time Rates of Wages and Hours of Labor in Massachusetts, 1931. This is the twenty-second of a series of annual reports of a similar nature, the first of which was issued by the former Bureau of Statistics in 1910. Nearly all of the information published in the earlier reports of this series was obtained from officials of labor organizations, and the reports for each of the years, 1913 to 1923, inclusive, were published under the title, "Union Scale of Wages and Hours of Labor in Massachusetts." From year to year the additional information obtained from employers has been included and, beginning with the report for 1924,

the reports have been issued under the more appropriate title "Time Rates of Wages and Hours of Labor in Massachusetts."

The information obtained from officials of local trade unions relates to basic rates and hours of labor, the terms of which in most instances are definitely expressed in joint agreements between employers and employees. These data are presented by industries, trades, and occupations and by municipalities represented. As in former years, data with reference to union rates of wages and hours of labor in Boston, Fall River, Springfield, and Worcester were furnished to the United States Bureau of Labor Statistics for publication in its annual report covering a large number of cities in the United States.

Additional information, obtained from official records of employers, has reference to rates of wages and hours of labor affecting employees in Massachusetts who are engaged in public service (federal, municipal, and metropolitan district), transportation service (steam railroads, street and electric railways, railway express, and passenger bus), and telephone and telegraph service.

MONTHLY SURVEYS AND PRESS NOTICES

Introductory. In 1930 the division of statistics conducted four "monthly surveys of employment and earnings of wage-earners" as follows: manufacturing, wholesale and retail trade, building construction, and public utilities. Frequent requests for similar information in other fields of employment were received, but the scope of this work could not be materially extended within the limits of the appropriation for the statistical work of the division.

Early in 1931 the legislature passed a special appropriation (Chapter 14, Acts of 1931) which made available additional funds, in the amount of \$17,740, for the extension of the scope of the monthly surveys. In March, 1931, fourteen special statistical investigators and seven office clerks were appointed under this act, for a period of three months, and the preliminary work of establishing an adequate list of reporting agencies in additional fields of employment was undertaken. At the expiration of that period, a portion of the force was retained for the remainder of the fiscal year, in order to continue the work from month to month. Efforts were first directed toward securing more adequate representation of wholesale and retail trade and building construction, and, as the work progressed, other fields of employment were added, with the result that there was an increase from four to sixteen (including a miscellaneous class) in the number of classes of employment canvassed, and an increase in the coverage, from about 3,800 to over 7,500 reporting agencies. An endeavor was also made to secure a sufficiently large list of reporting agencies in each field of employment, in order that the returns might be truly representative of employment in all industries and occupations in the state, and thus make possible, eventually, the computation of a "composite index of employment" in the commonwealth.

In nearly all of its surveys the department cooperates with the United States Bureau of Labor Statistics, and duplication of the work of collecting similar data by two governmental agencies is thereby avoided. In accordance with a cooperative agreement between this department and the United States Bureau of Labor Statistics, the franking privilege has been granted to this department in connection with this branch of its work, and the postage expense has been greatly reduced.

In Table 2 data are presented showing the extent to which the coverage of the monthly surveys has been increased during the past year. The month of January has been selected as representative of the coverage of the surveys prior to the passage of the special act of the legislature providing for their extension, and the month of December is representative of the present coverage of the surveys.

Table 2. — Increase in Coverage of Monthly Surveys Between January and December, 1931

[Made Possible by Passage of Special Legislation Appropriating Additional Funds Therefor (Chapter 14, Acts of 1931)]

INDUSTRIAL GROUP	NUMBER OF ESTABLISHMENTS REPORTED FOR		NUMBER OF PERSONS ON PAY ROLL WEEK NEAR 15TH OF —		AMOUNT OF PAY ROLL WEEK NEAR 15TH OF —	
	January	December	January	December	January	December
<i>Manufacturing</i>	1,052	1,057	173,422	151,916	\$3,824,682	\$3,021,108
<i>Public Utilities</i>	85	136	51,238	49,677	1,664,915	1,595,270
Steam railroads	6	6	25,788	23,181	791,578	694,319
Street railways	15	15	11,922	11,678	440,791	431,777
Passenger bus companies ¹	—	28	—	1,154	—	35,832
Gas and electric companies	64	87	13,528	13,664	432,546	433,342
<i>Wholesale and Retail Trade</i>	2,349	4,786	43,559	83,979	1,130,747	2,005,789
Wholesale	2	682	2	15,134	2	457,855
Retail	2	4,104	2	68,845	2	1,547,934
Building Construction	357	730	6,479	7,840	242,405	254,767
Highway Construction ¹	—	76	—	3,803	—	106,229
Municipal Employment ¹	—	78	—	23,144	—	662,698
Agricultural Employment ¹	—	69	—	896	—	20,326
Amusement and Recreation Places ¹	—	48	—	2,256	—	54,644
Banks and Trust Companies ¹	—	187	—	3,652	—	112,156
Hospitals ¹	—	24	—	3,061	—	45,876
Hotels ¹	—	91	—	5,545	—	88,415
Insurance Companies and Agencies ¹	—	53	—	5,309	—	140,328
Laundries ¹	—	58	—	2,539	—	50,469
Schools and Colleges ¹	—	11	—	1,731	—	65,404
Teaming, Trucking, and Handling ¹	—	75	—	2,636	—	66,624
All other classes ¹	—	51	—	1,884	—	58,249
All Industrial Groups Combined	3,843	7,530	274,698	349,868	\$6,862,749	\$8,348,352
Less duplication ³	18	18	4,640	3,563	149,672	113,748
Total — less duplication	3,825	7,512	270,058	346,305	\$6,713,077	\$8,234,604

¹ Not canvassed until after passage of special act (Chap. 14, Acts of 1931).

² Returns not classified separately as wholesale and retail until September, 1931.

³ Car and general shop construction and repair work by electric railways and steam railroads, and the manufacture of gas and by-products, although engaged in by public utility companies, are, for census purposes, classified as manufacturing industries. The data, therefore, are included each month with the release covering returns from representative manufacturing establishments, and are also included in the complete returns from public utilities. There is, therefore, a duplication of data, as shown in the table.

In January, 1931, reports were received from 3,825 establishments in four industrial groups and 270,058 wage-earners were covered, while the pay roll for the week including the fifteenth of that month amounted to \$6,713,077. In December, 1931, reports were received from 7,512 establishments in which 346,305 wage-earners were employed, and the weekly pay roll amounted to \$8,234,604. Although about twice as many establishments were canvassed in December as in January, the number of persons covered was not increased in the same proportion as the number of reports, because many of the reporting agencies added to the list employed smaller numbers of employees than those previously reporting. Furthermore, employment decreased somewhat in 1931, and a generally lower level was reached in December than in January. Had employment not declined, the representation in December would have been considerably greater for those reporting that month than was actually the case. For example, in manufacturing, the establishments reporting were almost identical in January and December, but the number employed by those reporting in December was 151,916, or 21,506 fewer wage-earners employed in virtually the same number of establishments in January. Likewise, in the public utility group, the six railroad companies employed 2,607 persons less in December than in January. Passenger bus companies, which are becoming of increasing importance, were added to the public utility group.

As a result of a large increase, from 2,349 to 4,786, in the number of wholesale and retail trade establishments reporting, with a correspondingly large increase in the number of persons covered, it became possible to classify, separately, the wholesale and retail trade outlets, and to present the data in much greater detail by important sub-classes. In the survey of tradesmen employed on building construction

the number of contractors reporting in December was about twice the number from whom reports were received in January, but owing to a marked decrease in the amount of construction work done later in the year, the number employed by 730 contractors who reported in December was only 21 per cent greater than the number employed in January by the 357 contractors who reported in that month. The contractors now reporting each month employ in normal times a large majority of the building tradesmen in Massachusetts.

Because of the expansion of highway work as a means of increasing employment, an endeavor was made to cover, thoroughly, this field of employment, and it is believed that reports received during the year included nearly all such work of any importance in this State performed by private contractors. Street and highway construction by municipalities also increased greatly in 1931. Public employment is such a large factor that it should be considered in any comprehensive survey of general conditions. The cooperation of the officials of the cities and towns of the state was, therefore, requested in order that there might be secured a complete record, each month, of the number of wage-earners employed by the municipalities. The inquiry was confined to manual workers and to those non-manual workers who received their pay weekly. The cities and towns now reporting comprise about 75 per cent of the entire population of the state, and the returns are believed to be quite representative.

The employment of agricultural labor, while not extensive in Massachusetts, is nevertheless of sufficient importance to warrant the making of a monthly survey. The securing of a somewhat limited number of returns involved much original canvassing of rural communities throughout the state, and in December only 69 employers reported, which is hardly an adequate sample, but with the advent of the spring planting season, it is hoped that it may be possible to add materially to the list of reporting agencies.

Nearly all of the amusement and recreation places canvassed were theatres, and several of the "chain" theatre companies report for all theatres under their jurisdiction in Massachusetts. Banks and trust companies are an important employing group and it has been possible to secure a large number of returns from such companies, and the sample constitutes at least 50 per cent of the total number of wage-earners actually employed by all such companies in the State. A similar statement also holds true with reference to insurance companies and insurance agencies.

The extent to which the returns from hospitals are representative cannot be definitely determined, but over 3,000 employees are included. The reports do not include trained nurses, physicians and other professional employees, but merely those who may be considered as wage-earners. Both year-round and seasonal hotels are included in the survey, and the reports are believed to be quite representative. Laundries have been recently added to the establishments canvassed, but the number of reports received does not yet constitute a fully representative sample. The survey of schools and colleges is confined to those maintained wholly or principally by private funds, and the reports cover only the clerical force, building employees, etc. The teaming and trucking companies from which reports are received are those which transport or handle materials and commodities which are not their own property. In many of the other lines of employment, such as building construction, coal delivery, etc., this class of work is done with company-owned equipment and is not separately reported under teaming and trucking. The miscellaneous returns include various classes of employment, none of which has as yet been covered sufficiently to warrant its being shown separately.

Manufacturing. The collection of pay-roll data each month from *representative* manufacturing establishments was first undertaken in September, 1922, in order that current data, indicating the trend of employment and earnings of wage-earners might be immediately available. The so-called "standard plan," adopted by the leading industrial states, is followed, and the questionnaire used has, purposely, been made quite simple in form in order that all inquiries may be answered readily by reference to current pay-roll records.

Approximately 1,050 manufacturing establishments, having a normal force of over 240,000 persons, are canvassed each month. The returns cover about 11 per cent of the total number of such establishments and about 40 per cent of the total

number of wage-earners employed in manufacturing in the State. Efforts are made to maintain a truly representative group of reporting establishments by industries, by municipalities, by industries within the principal municipalities, and by size of establishments. It is possible by means of this monthly survey to determine the trend of employment and earnings in the principal manufacturing industries and municipalities much in advance of the completion of the exhaustive annual census of manufactures. For example, in January, 1931, upon completion of the tabulations for the December, 1930 survey, it was possible to estimate the average number employed during the year 1930. Upon reference to the series of index numbers for all industries combined,¹ it will be observed that the average of the monthly index numbers for 1930 was 81.7, — equivalent to 482,533 wage-earners employed. According to the annual census data, announced late in 1931, the average number employed during the year was 481,449. Thus the estimate based on the representative returns varied only two-tenths of one per cent from the actual, and was available many months earlier.

In Table 3 the number of manufacturing establishments from which reports were received in December, 1931, and the number of wage-earners employed in these establishments are shown by principal industries and municipalities.

Table 3. — Number of Manufacturing Establishments and Number of Wage-Earners Represented in the Survey for December, 1931: By Industries and Municipalities

INDUSTRIES AND MUNICIPALITIES	Number of Estab- lish- ments Repre- sented	Number of Wage- Earners Employed	INDUSTRIES AND MUNICIPALITIES	Number of Estab- lish- ments Repre- sented	Number of Wage- Earners Employed
INDUSTRIES			INDUSTRIES — <i>Con.</i>		
<i>All Industries Represented</i>	<i>1,057</i>	<i>151,916</i>	Iron and steel products	10	1,204
Bookbinding	14	753	Jewelry	34	2,158
Boot and shoe cut stock and findings	46	2,132	Leather, tanned, curried, and finished	28	4,088
Boots and shoes	82	12,792	Machine-shop products	38	3,717
Boxes, paper	29	1,995	Machine and other tools	24	1,658
Bread and other bakery products	48	4,156	Motor vehicles, bodies, and parts	14	489
Car and general shop construction and repairs, steam railroads	3	1,164	Musical instruments	10	387
Carpets and rugs	4	1,863	Paper and wood pulp	30	5,698
Chemical and allied products	24	3,832	Printing and publishing, book and job	51	3,686
Clothing, men's	27	1,715	Printing and publishing, newspaper	21	2,540
Clothing, women's	35	2,039	Radio apparatus	7	1,331
Confectionery	16	4,022	Rubber footwear	3	4,455
Cotton goods	49	19,270	Rubber goods	14	2,085
Cutlery and tools	16	1,299	Silk goods	8	2,110
Dyeing and finishing textiles	8	4,570	Slaughtering and meat packing	9	1,957
Electrical machinery, apparatus, and supplies (except radio)	20	6,184	Stationery goods	14	1,700
Foundry products	27	1,944	Steamfittings and steam and hot water heating apparatus	8	737
Furniture	37	2,509	Textile machinery and parts	11	2,458
Gas and by-products	13	995	Woolen and worsted goods	50	9,276
Hosiery and knit goods	16	4,457	All other industries	159	22,491
MUNICIPALITIES			MUNICIPALITIES — <i>Con.</i>		
<i>All Municipalities Represented</i>	<i>1,057</i>	<i>151,916</i>	Lowell	24	3,944
Attleboro	24	2,348	Lynn	42	7,082
Boston	210	22,502	New Bedford	28	7,409
Brockton	40	3,734	North Adams	8	1,735
Cambridge	67	8,991	Northampton	10	1,305
Chelsea	14	2,293	Peabody	18	3,177
Everett	21	2,551	Salem	19	2,565
Fall River	22	8,999	Somerville	10	1,424
Fitchburg	16	1,945	Springfield	47	5,886
Gardner	19	1,402	Taunton	17	2,451
Haverhill	30	1,611	Waltham	13	451
Holyoke	24	4,024	Worcester	67	10,804
Lawrence	20	3,038	All other municipalities	234	39,144
Leominster	13	1,101			

¹ See Appendix, page 97.

The results of the survey are published in mimeographed form and the data are presented for the state as a whole, for each of the 38 leading industries and for each of the 25 leading industrial cities, and include the following particulars: number of establishments reporting; number of wage-earners normally employed; number actually employed and their earnings, as shown by the pay roll for the week including the fifteenth day of the current month and the next preceding month; and the average weekly earnings for each of the two periods specified. The returns also show, with reference to operating time, the number of days per week and the number of hours per week considered as the normal operating schedule, and the corresponding number of days and hours each plant was actually in operation during the reporting periods.

With the questionnaire for the current month, a mimeographed summary of the results of the previous month's canvass is sent to each reporting agency, in order that the employers may compare the employment trend in their own plants with the corresponding trend for all other reporting establishments in the same industry which they represent. The announcements are also sent to the press and to a large number of organizations and individuals who have requested that such announcements be sent regularly as issued.

Space does not permit of a full presentation of the results of these monthly surveys, but the two series of index numbers appended to this section of the division report¹ show, by months, the trend of employment and of average weekly earnings in all manufacturing industries and in each of 20 leading industries, during the years 1925-1931, inclusive. These 20 industries together comprise about two-thirds of the total number of wage-earners normally employed in all manufacturing establishments in this Commonwealth. The index numbers of employment for each of the years 1925-1929, inclusive, were derived from the annual census data, and the index numbers for 1930 and 1931 were derived from data obtained by means of the monthly surveys. As soon as the *exhaustive* census data for later years become available, the index numbers based thereon will be substituted for the index numbers based on the *representative* returns. This method of revision removes any upward or downward bias which may have entered into the computations based on the data obtained monthly from the representative establishments.

The index numbers representing average weekly earnings² were all computed from the monthly survey data because the annual census schedule does not provide for a reporting, *by months*, of the amount paid in wages. Some unavoidable changes occur in the list of establishments reporting from month to month, due to the discontinuance of operations or removal of an establishment from the State, and exact comparability of the returns cannot be maintained, but, as already stated above, the list of reporting establishments is revised at frequent intervals, in order that it may be truly representative.

On reference to the series of index numbers representing the trend of employment³ in *all manufacturing industries combined*, it will be observed that for each month in each of the years beginning with 1927, the index number was below 100, that the average for 1930 was 81.7, and for 1931 it was 70.0. In 1930 there was a general downward trend from 89.4 in February to 72.4 in December. During February, March and April in 1931, the trend was slightly upward to 74.7 in April. Thereafter each month, except for a slight improvement in August, employment decreased, and the index number reached 61.1 in December. The largest change between months in 1931 was a decrease of 5.7 points in October, as compared with September.

In the *cotton goods manufacturing industry* employment has shown an almost continuous decrease during the past four years. The average of the monthly index numbers for the year 1930 was 56.7, and for 1931 it was 48.8. The trends for the two years differed somewhat. In 1930 there was a continuous downward movement each month beginning with 68.1 in February and ending with 48.2 in September, with no large change during the remainder of the year. Early in 1931 employment showed signs of improvement, and the index numbers for April and May were, respectively, 57.1 and 56.0. Thereafter, except for a very slight increase in August,

¹ See Appendix, pages 97 to 106.

² See Appendix, pages 102 to 106.

³ See Appendix, page 97.

employment declined to a marked degree, and the index number for October was 37.9, followed by some improvement in November, and again in December, when it increased to 41.7.

In the *manufacture of boots and shoes* the average of the monthly index numbers for the year 1930 was 93.8, and for 1931 it was 77.3. In February, March, April, and August in 1930 the index numbers exceeded 100, and rose to 108.7 in March. A marked decrease in employment was noted in October, and the lowest in that year was 64.4 in December. The usual seasonal improvement occurred in February, March, and April, 1931, but starting from an abnormally low point in December, 1930, the handicap was not overcome, and the index number for each month was lower than that for the corresponding month in 1930, and in December stood at 56.1, as compared with 64.4 in December, 1930.

In the *manufacture of woolen and worsted goods* the average of the index numbers of employment in 1930 was 69.9, and in 1931 it was 66.0. In 1930 employment increased from 67.5 in April to 75.0 in June, fell off a few points in July, increased in August and September, and in October, November, and December marked decreases occurred, and for December the index number was 58.8. In 1931 there was considerable improvement, from 57.9 in January to 81.5 in August, and in July, August, and September, 1931, the index numbers were above those for the corresponding three months in 1930. During the latter part of September, 1931, a general strike occurred in Lawrence against a wage reduction which reduced the index number of employment to 48.9 in October, and there was little change noted in November and December. The former employees of the mills affected agreed, after a prolonged strike, to accept the proposed wage reduction, but the manufacturers in the meantime had decided either to discontinue operations in that city or to resume operations on a greatly reduced schedule, so that comparatively few operatives were re-employed.

In the *manufacture of electrical apparatus and supplies* the average of the monthly index numbers in 1930 was 90.8, and in 1931, 74.9. The general trend downward in 1930 from 103.4 in January to 84.0 in August was interrupted by a slight upward movement in May and June. The index number for September was 87.2, and during the remainder of the year the monthly changes were relatively small. In 1931 the maximum employment occurred in January, but the index number was only 81.9, or 21.5 points below that of January in 1930. Except for a slight improvement in September, employment decreased each month in 1931, beginning in March (81.0) until the low point for the year (64.9) was reached in December.

In the *manufacture of foundry and machine-shop products* employment was nearly normal during the first six months in 1930, but the general trend was downward, from 100.6 in February to 87.5 in December, and the average for the year was 94.9. This downward trend continued throughout 1931. The low point for the year was 66.4 in December, and the average for the year was 75.1.

Each of the five leading manufacturing industries in Massachusetts discussed above has been seriously affected by the industrial depression in 1930 and 1931, and these five major industries together employ more than one-half of the total number of persons employed in manufacturing in this state.

The average weekly earnings of employees are affected both by the continuity of their employment and by part-time employment. The fluctuations of the trend lines representing the earnings of wage-earners in nearly all industries follow, in general direction, the fluctuations of the trend lines representing employment.¹ Basic wage rates have remained fairly constant for several years, but the actual earnings of those employed have shown marked decreases in nearly all of the manufacturing industries in 1930 and 1931, because of part-time employment, due to the operation of the plants during less than the customary number of days per week or hours per day.

For all manufacturing industries, combined, the average of the index numbers representing the earnings of wage-earners in 1930 was 96.4 and in 1931 it was 88.3, a decrease of 8.1 points, which decrease was largely due to curtailment of production during the last three months in 1931. A similar statement is true of nearly all of the individual industries. In some industries, more particularly the textile group,

¹ For Index Numbers and Charts, see Appendix, pages 97 to 113.

reductions in wage rates were reported during the latter part of the year, but no general policy of wage reductions had then been adopted, and the reductions, in few instances, exceeded ten per cent.

Wholesale and Retail Trade. The collection of monthly employment and pay-roll data from wholesale and retail trade establishments was begun in November, 1929. In 1931 the survey was extended, and the number of reports was increased from 2,349 in January to 4,786 in December, the number of persons on pay rolls was increased from 43,559 in January to 83,979 in December, and the corresponding weekly pay rolls were increased from \$1,130,747 in January to \$2,005,789 in December. As a result of the increase in the number of reporting agencies, it was possible, during the latter months of the year, to present the data in greater detail for each of ten classes of trade outlets, and the returns from wholesale outlets were tabulated separately from those for retail outlets, while the retail returns were further classified so as to present data for "chain" stores (of five or more units), and for independently owned stores. The average weekly earnings of employees were not computed because the pay-roll data include various classes of employees, many of whom are extra sales people employed for a limited number of hours each week, and any general average would be of little significance.

The returns now being received are believed to be quite representative, and the number of wage-earners covered constitutes about 30 per cent of the total number of wage-earners employed in wholesale and retail trade in the state. In Table 4 data are presented showing the number of establishments and the number of wage-earners represented in the survey for December, 1931, classified by classes of goods sold.

Table 4. — *Number of Wholesale and Retail Trade Establishments and Number of Wage-Earners Represented in the Survey for December, 1931: By Classes of Goods Sold*

CLASSES OF GOODS SOLD	Number of Reports Received	Number of Outlets Represented	Number of Wage-earners Employed
All classes combined	1,852	4,786	83,979
Wholesale	500	682	15,134
Retail	1,352	4,104	68,845
<i>Automobiles, accessories, gas, and oil</i>	<i>264</i>	<i>360</i>	<i>4,697</i>
Wholesale	19	42	658
Retail	245	318	4,039
<i>Candy, soda, and drugs</i>	<i>65</i>	<i>231</i>	<i>3,426</i>
Wholesale	18	20	657
Retail	47	211	2,769
<i>Department and dry goods</i>	<i>126</i>	<i>195</i>	<i>20,699</i>
"Chain" stores ¹	7	68	4,185
Independently owned	119	127	16,514
<i>Fuel and ice</i>	<i>146</i>	<i>263</i>	<i>4,619</i>
Wholesale	25	75	1,290
Retail	121	188	3,329
<i>Furniture and radios</i>	<i>109</i>	<i>151</i>	<i>2,375</i>
Wholesale	23	25	488
Retail	86	126	1,887
<i>Groceries, provisions, meats, and fish</i>	<i>361</i>	<i>2,394</i>	<i>20,897</i>
Wholesale	201	269	6,535
Retail	160	2,125	14,362
"Chain" stores ¹	20	1,950	9,071
Independently owned	140	175	5,291
<i>Hardware, paints, and wallpaper</i>	<i>73</i>	<i>116</i>	<i>1,396</i>
Wholesale	14	18	408
Retail	59	98	988
<i>Lumber and building materials</i>	<i>85</i>	<i>115</i>	<i>1,873</i>
Wholesale	10	12	492
Retail	75	103	1,381
<i>Lunch rooms and restaurants</i>	<i>151</i>	<i>275</i>	<i>5,773</i>
"Chain" ¹	5	107	2,420
Independently owned	146	168	3,353
<i>Wearing apparel and accessories</i>	<i>215</i>	<i>334</i>	<i>12,391</i>
Wholesale	23	26	503
Retail	192	308	11,888
<i>All other classes of goods</i>	<i>257</i>	<i>352</i>	<i>5,833</i>
Wholesale	167	195	4,103
Retail	90	157	1,730

¹ Five or more outlets.

The largest groups of wholesale and retail establishments covered in December, 1931, in the order of number of employees, were: independently owned department and dry goods stores, 16,514; retail wearing apparel and accessories stores, 11,888; "chain" retail groceries, provisions, meats, and fish stores, 9,071; wholesalers of these same commodities, 6,535; independently owned stores in the same trade group, 5,291; "chain" department and dry goods stores, 4,185; retail automobiles, accessories, gas, and oil, 4,039; independently owned lunchrooms and restaurants, 3,353 employees; and retail fuel and ice companies, 3,329.

In order to show the trends of employment and of pay-roll earnings, monthly index numbers have been computed by the "chain-relative" method, for all trade establishments combined and for each of three leading classes of trade outlets, beginning with November, 1929. (See Table 5.) Because of the large seasonal increase in employment in department and dry goods stores and in those selling wearing apparel and accessories, during the Christmas season, the pay-roll data for January, 1930, were taken as the base, or 100.0.

Table 5. — *Index Numbers of Employment and Earnings of Wage-earners in Representative Wholesale and Retail Trade Establishments, November, 1929 — December, 1931*

(Base — January, 1930 = 100)

YEARS AND MONTHS	NUMBER OF PERSONS EMPLOYED				AGGREGATE WEEKLY PAY ROLLS			
	All Estab- lish- ments Reporting	Depart- ment and Dry Goods Stores	Wear- ing Apparel and Access- ories	Grocer- ies, Provi- sions, Meats and Fish	All Estab- lish- ments Reporting	Depart- ment and Dry Goods Stores	Wear- ing Apparel and Access- ories	Grocer- ies, Provi- sions, Meats and Fish
<i>1929</i>								
November . . .	114.5	117.6	115.4	108.8	106.4	106.9	112.2	102.6
December . . .	127.2	152.0	128.5	105.0	112.9	126.7	114.2	103.6
<i>1930</i>								
January . . .	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
February . . .	97.0	95.5	93.0	101.7	97.7	91.8	94.8	103.8
March . . .	97.4	95.2	94.2	102.9	96.7	91.5	96.0	102.5
April . . .	99.3	98.7	98.9	101.8	98.1	93.6	100.4	102.2
May . . .	100.6	103.5	98.1	99.9	99.8	95.8	102.5	102.8
June . . .	101.4	101.8	99.1	104.8	102.1	96.4	103.3	109.8
July . . .	98.3	98.3	91.7	105.4	100.0	93.8	97.7	109.3
August . . .	95.1	95.4	88.9	100.3	97.2	92.0	95.6	104.9
September . . .	96.6	94.9	93.3	101.4	97.8	89.9	97.7	106.2
October . . .	98.0	97.9	95.3	99.3	98.1	91.2	99.8	103.3
November . . .	101.0	100.4	100.8	101.4	100.3	94.8	101.7	105.4
December . . .	111.5	127.5	113.6	102.2	105.3	111.0	106.6	105.4
<i>Average, 1930</i> . .	99.7	100.8	97.3	97.6	99.4	95.2	99.7	104.6
<i>1931</i>								
January . . .	94.1	89.1	92.4	98.2	96.9	86.8	96.9	102.0
February . . .	93.4	90.0	90.1	97.9	94.0	82.5	94.1	101.9
March . . .	94.1	88.8	92.4	101.8	94.1	84.0	96.5	102.1
April . . .	95.0	90.2	95.5	103.1	94.3	82.9	99.3	102.6
May . . .	95.8	92.9	93.7	103.1	94.6	83.4	98.3	103.1
June . . .	95.8	90.5	93.9	104.9	94.4	84.2	97.4	103.6
July . . .	93.1	86.8	87.8	103.0	93.0	81.1	94.5	102.4
August . . .	91.7	88.4	83.5	102.6	91.2	82.4	90.9	101.4
September . . .	94.0	93.1	89.6	103.6	91.7	83.0	93.4	101.0
October . . .	94.9	94.3	92.2	102.7	91.7	83.8	95.9	99.8
November . . .	94.1	97.5	91.8	101.4	90.8	86.8	95.3	98.7
December . . .	100.2	119.6	103.5	101.7	94.5	102.6	101.7	98.8
<i>Average, 1931</i> . .	94.7	93.4	92.2	102.0	93.4	85.3	96.2	101.5

Marked seasonal fluctuations in employment during November, December, and January, in 1930 and 1931, are indicated by the index numbers of employment for all wholesale and retail trade establishments, combined, for department and dry goods stores, and for stores selling wearing apparel and accessories. These fluctuations resulted from the employment, in November and December, of large numbers of temporary salespeople required for the Christmas holiday trade, and the dismissal of these temporary employees in January. During the Spring months some increase in employment occurred, followed by a reduction in the sales force during July and August, reaching the minimum in August each year. Beginning in September, and continuing through the remainder of each year, the number employed increased from month to month, reaching the maximum in December.

Employment in grocery and provision stores and meat and fish markets did not show any very marked seasonal changes in 1930 or 1931. The months in which the number employed was relatively high were June and July in 1930, and April to October, inclusive, in 1931. In this group of establishments, employment was maintained at a somewhat higher level in 1931 than in 1930, whereas in department and dry goods stores, and those selling wearing apparel and accessories, employment in 1931, as compared with 1930, showed a marked decrease.

Fluctuations in the aggregate weekly pay rolls followed quite closely the fluctuations in employment, but the changes were not so marked. In the department and wearing apparel stores during the busy seasons, many additional sales people are employed, but the amount paid in wages does not increase in the same proportion, for the reason that many of the special sales people are employed for only a few

hours a day, and, consequently, the wage fund is not greatly increased. There seems to be a somewhat greater divergence in 1931 between the curves representing employment and those representing pay rolls, indicating a decrease in the per capita earnings of those employed.

Building Trades. Employment and pay-roll data were first secured from building contractors in April, 1927. The information called for on the schedule can readily be taken from the pay rolls, and includes the following items: number of building tradesmen actually employed during the week including or ending nearest the 15th of the month, the total number of hours worked, and the amount paid in wages. Efforts made to secure a larger number of reports in 1931 resulted in doubling the number of contractors reporting, and it is now possible to present the data by classes of contractors and for 21 cities and towns, thus making the survey of greater value than formerly.

For December, 1931, returns were received from 730 building contractors. Of the 730 contractors, 637 contractors employed 7,840 building tradesmen, who worked 260,670 man-hours, for which they were paid \$254,767, while 93 contractors reported that they employed no building tradesmen during December. The average number of hours worked per week per man employed was 33.2; the average weekly earnings were \$32.50, or 97.7 cents per hour. Very nearly all of the important general contractors and sub-contractors in the building industry are included in the list of those reporting each month.

In Table 6 data are presented showing the number of contractors reporting and the number of building tradesmen employed in December, 1931.

Table 6. — Number of Contractors Reporting and Number of Building Tradesmen Employed in December, 1931: By Classes of Work and Municipalities

CLASSIFICATION	Number of Reports	Number of Building Tradesmen Employed	CLASSIFICATION	Number of Reports	Number of Building Tradesmen Employed
<i>Classes of Work</i>			<i>Municipalities — cont.</i>		
Carpenter	53	148	Holyoke	13	473
Electrical	81	522	Lawrence	14	146
General	266	4,424	Lowell	21	200
Mason and plastering	40	320	Lynn	8	97
Painting	43	339	Medford	7	78
Plumbing, heating and ventilating	136	1,047	New Bedford	25	142
Roofing and sheet metal	47	386	Newton	25	136
All other work	64	654	Pittsfield	7	117
Totals	730	7,840	Quincy	14	146
<i>Municipalities</i>			Somerville	15	123
Arlington ¹	12	117	Springfield	11	122
Boston	205	2,171	Taunton	13	113
Brookline ¹	16	148	Watertown ¹	9	129
Cambridge	51	554	Winchester ¹	10	170
Everett	10	151	Worcester	50	466
Fall River	32	343	All others	327	2,037
			Totals	730 ²	7,840 ²

¹ Town.

² This total is less than the sum of the several items because a large number of contractors reported jobs in more than one municipality and some men were employed on more than one job.

Because of the interest in data for the large municipalities, contractors were requested to furnish the pay-roll data by individual jobs or groups of jobs within a single city or town, and, as a result of their hearty cooperation, it has been possible, beginning with the returns for September, to present the details for 21 cities and towns in which at least 100 building tradesmen are ordinarily reported as employed. Persons interested in the trend of employment and earnings of building tradesmen in cities and towns in which there is usually considerable building activity, can follow the changes from month to month, as indicated by these reports. It has been found that conditions in the several municipalities vary considerably, although the combined returns for the State may not show any large change from month to month.

A series of index numbers has been computed by the "chain-relative" method, showing trends of employment, man-hours, earnings, and other factors, and these index numbers are given in Table 7 for each of the months in 1930 and 1931. The index numbers for prior months, beginning with April, 1927, have already been published, and are not included in this table.

*Table 7. — Index Numbers of Employment and Earnings of Building Tradesmen in Massachusetts as Reported by Building Contractors**

(Average for year 1928=100)

MONTHS	Number of Trades- men	Number of Man- hours	Amount Paid in Wages	Average Weekly Hours per Man	Average Weekly Earnings per Man	Average Hourly Earnings per Man
<i>1930</i>						
January	93.3	89.9	96.2	96.4	103.1	107.0
February	85.7	82.5	89.0	96.3	103.9	107.9
March	89.3	90.4	95.3	101.2	106.7	105.4
April	93.2	94.7	99.4	101.6	106.7	105.0
May	91.8	92.9	95.7	101.2	104.2	103.0
June	103.5	105.5	109.2	102.0	105.5	103.5
July	105.6	105.0	109.1	99.4	103.3	103.9
August	100.0	99.6	103.8	99.6	103.8	104.3
September	97.4	98.5	101.9	101.1	104.6	103.5
October	95.3	86.9	90.5	91.2	95.0	104.1
November	94.3	85.2	90.0	90.3	95.4	105.6
December	85.3	80.7	86.3	94.6	101.2	106.9
<i>Average, 1930</i>	<i>94.6</i>	<i>92.7</i>	<i>97.2</i>	<i>97.9</i>	<i>102.8</i>	<i>105.0</i>
<i>1931</i>						
January	68.4	62.4	67.7	91.2	99.0	108.5
February	63.3	56.2	61.7	88.8	97.5	109.8
March	60.4	54.6	69.7	90.4	98.8	109.3
April	68.3	63.7	66.2	93.3	96.9	103.9
May	68.5	61.7	62.5	90.0	91.2	101.3
June	70.2	60.4	59.9	86.1	85.2	99.0
July	70.7	67.0	67.9	94.8	96.0	101.3
August	73.1	65.7	67.3	89.9	92.1	102.4
September	74.9	67.1	69.1	89.6	92.3	103.0
October	65.9	54.6	53.6	82.9	81.3	98.2
November	62.5	54.2	52.7	86.7	84.3	97.2
December	54.9	45.9	45.5	83.6	82.9	99.1
<i>Average, 1931</i>	<i>66.8</i>	<i>59.5</i>	<i>62.0</i>	<i>88.9</i>	<i>91.5</i>	<i>102.8</i>

* This survey was first undertaken in April, 1927.

According to the index numbers presented in Table 7, conditions in the building industry in 1931 differed considerably from those in 1930. Usually in April and May of each year, large increases in the number of building tradesmen employed are reported, and building activity continues to increase somewhat each month until the peak of employment is reached during the summer months. In 1931 employment did increase somewhat during the six months, April to September, but the index number for September, the peak month of the year, was only 74.9, as compared with 97.4 in September, 1930, while the average of the monthly index numbers in 1931 was only 66.8, as compared with 94.6, the average for 1930, 103.0 for 1929, and 100.0 for 1928 (the base year). Expressed in percentages, there was a decrease of 33.2 per cent in the number of building tradesmen employed in 1931, as compared with the average number employed in 1928, and a decrease of 29.4 per cent, as compared with the average number employed in 1930.

In 1931 the number of man-hours worked did not increase to any great extent during the spring and summer months, when, ordinarily, there is much activity in the building industry, and this was also true with reference to the amount paid in wages.

The average of the index numbers representing man-hours worked in 1931, was 59.5, as compared with 92.7 in 1930, and the corresponding index number representing the amount paid in wages in 1931 was 62.0, as compared with 97.2 in 1930.

The average weekly hours worked per man and the average weekly earnings per man were somewhat less in 1931 than in 1930, although not showing the same marked decreases as have been noted in the case of number of building tradesmen employed, man-hours worked, and amount paid in wages. The average hourly earnings of those employed have remained fairly constant for several years, and not until the close of 1931 was there any evidence of a general reduction in the rates of wages in the building trades. The average of the index numbers representing weekly hours worked per man in 1931 was 88.9, as compared with 97.9 in 1930; for weekly earnings per man, the average for 1931 was 91.5, as compared with 102.8 in 1930; and for hourly earnings per man the average in 1931 was 102.8, as compared with 105.0 in 1930.

Highway Construction. During the past year much additional highway work was undertaken by the State, counties, and municipalities in Massachusetts, as elsewhere throughout the United States, in order to provide work for the unemployed. Efforts were made to secure reports covering all highway work of any importance which was being done in Massachusetts by all contractors to whom contracts were let. Some field work by special investigators was necessary in order to obtain reports not returned by mail, but, in most instances, the response to the requests for information was prompt and satisfactory.

According to the returns, employment on highway work increased greatly during the spring and early summer months, and the work continued unabated until November, when it declined slightly, and in December it was at the minimum for the year, yet even as late as the week including the 15th of December, reports were received from 76 contractors who employed 3,803 workmen for a total of 167,561 man-hours, and the total pay roll amounted to \$106,229. The average number of hours worked per man was 44.1 per week, and the average weekly earnings per man were \$27.93, or 63.4 cents per hour.

Factors other than temperature affect the employment and earnings of men on highway work. For example, the personnel of the groups at work varies from week to week, according to the status of the project. During the initial stages, laborers, for the most part, are employed. Later, both laborers and skilled workmen are employed at the same time, and, finally, when the work nears completion, a much larger proportion of the force consists of skilled workmen, who are employed in surfacing and in the finishing processes.

Public Utility Companies. The monthly survey of employment by public utility companies was begun in January, 1929, and reports were then received from 34 companies, representing three classes of utilities. In 1930 the number was increased to 84, and in 1931 it was increased to 136, comprising: six steam railroad companies, 15 street and electric railway companies, 28 passenger bus companies, and 87 gas and electric companies engaged in the production and distribution of gas and electricity, or both. All employees, both manual and clerical (except salaried executives), on the pay rolls of these companies in Massachusetts, are included in the reports. The companies reporting employ over 95 per cent of the total number of wage-earners on the pay rolls of all utility companies in Massachusetts coming within the four classifications. Each of the three steam railroad companies which are engaged in interstate business furnish a special tabulation of employment and pay-roll data covering their operation within Massachusetts only. The operations of the other three railroads are confined wholly to Massachusetts.

In Table 8 the number of reports received, the number of wage-earners employed, and the aggregate weekly pay rolls in December, 1931, are shown, and for each of the four classes of public utilities, pay-roll data are furnished separately for two or more important groups of employees.

Table 8. — Number of Wage-earners Employed and Aggregate Weekly Pay Rolls of 136 Public Utility Companies in Massachusetts, for One Week in December, 1931

CLASSES OF PUBLIC UTILITIES AND EMPLOYEES	Number of Reports	Number of Wage-earners Employed	Aggregate Weekly Pay Rolls
All classes of Public Utilities	136	49,677	\$1,595,270
<i>Steam railroads</i>	<i>6</i>	<i>23,181</i>	<i>694,319</i>
Train and engine crews	—	4,376	192,647
All other employees	—	18,805	501,672
<i>Street and electric railways</i>	<i>15</i>	<i>11,678</i>	<i>431,777</i>
Building and repairing	—	2,118	75,235
Operating and maintenance	—	8,944	336,507
All other employees	—	616	20,035
<i>Passenger bus companies</i>	<i>28</i>	<i>1,154</i>	<i>55,833</i>
Operating and maintenance	—	992	31,337
All other employees	—	162	4,495
<i>Gas and electric companies</i>	<i>87</i>	<i>13,664</i>	<i>433,342</i>
Productive employees	—	4,666	158,888
All other employees	—	8,998	274,454

The two series of index numbers presented in Table 9 relate to employment, and to the aggregate weekly earnings of employees of the four classes of public utility companies covered by the survey. The average number employed in 1930 has been taken as the base (100.0) in computing these index numbers. The passenger bus companies were first canvassed in April, 1931, and in computing index numbers for this class of companies, the same index numbers representing employment and average weekly earnings for employees of bus companies as those for street railway companies were taken as the initial index numbers for April, 1930, and thereafter the changes which occurred in employment and earnings of employees of these companies were separately computed.

Table 9. — *Index Numbers of Employment by Public Utility Companies and Aggregate Weekly Pay Rolls of Such Companies in Massachusetts, 1930 and 1931*

WEEK ENDING NEAR 15TH OF	All Classes Combined	Steam Railroads	Street and Electric Railways	Passenger Bus Companies	Gas and Electric Companies
1930					
Employment					
January	100.4	101.5	101.0	—	97.7
February	99.1	99.3	101.0	—	97.0
March	99.4	99.7	100.3	—	97.9
April	102.0	103.9	99.5	—	100.3
May	104.3	106.8	100.7	—	102.4
June	103.7	105.5	101.0	—	102.5
July	102.3	102.8	100.1	—	103.2
August	100.7	101.2	97.8	—	102.0
September	98.9	97.9	99.5	—	100.3
October	98.8	97.3	100.9	—	100.2
November	96.4	93.1	101.2	—	98.8
December	94.1	91.0	97.1	—	97.9
Average	100.0	100.0	100.0	—	100.0
1931					
January	92.4	89.3	96.0	—	95.6
February	92.3	88.6	96.3	—	96.3
March	91.8	88.2	95.4	—	96.0
April	92.3	87.5	96.5	96.5 ¹	98.0
May	93.5	89.4	97.4	96.5	98.1
June	90.8	83.9	97.8	101.2	97.7
July	92.3	86.0	99.7	106.0	97.5
August	92.6	87.3	98.1	109.3	97.0
September	92.5	88.3	97.4	106.7	96.1
October	91.0	86.6	95.6	105.2	95.2
November	88.5	82.8	95.6	99.6	93.6
December	86.4	80.2	94.2	95.6	92.1
Average	91.4	86.5	96.7	100.4	96.1
1930					
Aggregate Weekly Pay Rolls					
January	103.2	105.5	102.8	—	98.8
February	102.7	106.0	101.5	—	97.3
March	101.0	102.9	100.9	—	97.2
April	102.5	105.1	100.5	—	99.5
May	104.0	106.9	100.6	—	101.8
June	101.6	102.2	99.7	—	102.6
July	101.2	99.7	101.7	—	103.6
August	99.8	98.8	98.3	—	103.3
September	98.5	97.0	98.3	—	102.0
October	97.1	94.4	100.2	—	99.3
November	95.3	92.7	98.9	—	96.9
December	93.1	88.9	96.7	—	97.8
Average	100.0	100.0	100.0	—	100.0
1931					
January	91.4	87.6	95.4	—	94.6
February	91.2	86.0	96.5	—	95.5
March	89.8	84.2	94.9	—	95.2
April	91.2	86.2	95.1	95.1 ¹	96.8
May	92.0	87.8	96.1	95.4	95.9
June	89.2	81.5	96.7	100.4	96.0
July	90.5	84.0	96.2	107.6	96.4
August	90.8	84.8	95.9	108.2	95.8
September	90.2	85.6	94.5	105.2	93.8
October	87.1	80.4	93.9	103.1	92.2
November	86.1	79.4	94.0	96.7	90.8
December	84.6	76.8	93.8	92.3	90.3
Average	89.5	83.7	95.3	99.2	94.4

¹ Passenger bus companies were first canvassed in April, 1931. In order to establish the two series of index numbers, the index numbers of employment by such companies and the earnings of their employees in April were assumed to be the same, respectively, as the corresponding index numbers of employment by street railways and of earnings by their employees.

Upon reference to the index numbers representing all classes of public utilities, combined, it will be observed that in 1931 there was a decrease of 8.6 per cent in the average number employed as compared with the average number employed in 1930. Beginning in May, 1930, when the index number was 104.3 (the highest during the two-year period), there was a gradual and almost continuous decrease in employment until December, 1931, when the index number stood at 86.4.

The number of wage-earners employed by the steam railroad companies constitutes about one-half of the total number employed by all four classes of public utility companies reporting, and, therefore, has considerable weight in determining the trends of employment and earnings of wage-earners in the four classes, combined. The average number of wage-earners employed by the steam railroad companies in 1931 was less by 13.5 per cent than the average number employed in 1930. Employment on the steam railroads began to show a decrease in June, 1930, and the trend of employment continued generally downward until the low point (80.2) was reached in December, 1931.

Street and electric railway employees were less seriously affected by unemployment than were steam railroad employees, and at no time during the two-year period did the index number representing employment of street and electric railway employees fall below 94.2 for December, 1931.

Passenger bus companies were quite fully employed during the period April to December, 1931, for which index numbers were computed, and during July, August, September and October a fairly large addition to the force was reported.

No marked changes, other than seasonal, in the number of persons employed by the gas and electric companies were noted in 1930, but in 1931 the general level of employment was somewhat below that in 1930. At the close of 1931, large decreases were reported, and the index number for November was 93.6, and for December, it was 92.1.

For each of the four classes of public utilities, the fluctuations in the aggregate weekly pay rolls followed quite closely the corresponding fluctuations in number of persons employed, but the reductions when they occurred were proportionately greater because of the effect of short-time employment, and of reductions in the rates of wages, particularly during the later months of 1931.

Public Employment. No survey of employment would be complete without the inclusion of public employment. The efforts of the division have thus far been confined to the securing of reports relative to employment by the municipalities of the commonwealth.

This survey now covers:

(a) "Manual workers" coming within the classification "mechanic, workman, laborer, or employee," as defined in the General Laws, Chapter 149, Section 148, which provides for the weekly payment to all such employees of the wages or salaries earned (whether based on hourly, daily, or weekly rates).

(b) Clerical workers and other non-manual workers who also receive their pay weekly.

It has been deemed advisable, because of the employment of seasonal and temporary forces in the highway and public works departments, to consider manual workers employed in such departments separately from those employed in other municipal departments. Reporting officials have been requested to omit from the returns pay-roll data relative to police, fire, and school departments, and hospitals maintained by public funds.

In April, 1931, a communication was directed to the mayor of each of the 39 cities and to the chairman of the board of selectmen of each of the 316 towns, explaining the nature and purpose of the survey, and enclosing a questionnaire to be returned by the proper city or town officials. In answer to the first communication, about 50 returns, which were in proper form, and which covered a sufficiently large number of employees to warrant canvassing each month, were received. The chairman of selectmen of many of the small towns reported that the number employed on town work was so small as to be practically negligible, and, accordingly, special efforts were made to secure reports from all of the cities and large towns, with the result that returns are now being received regularly from all cities having a population of over 40,000 persons, and also from a number of the smaller cities and large towns.

It is the practice of cities and towns to increase their force of manual employees in the spring months. As this survey was not undertaken until April, 1931, and the coverage for the first few months was not fully representative, the returns do not indicate the changes which occurred in employment in the spring as compared with the winter months, but reports were received from nearly all of the larger municipalities beginning with July, 1931, and from these reports it appears that employment during the summer and fall varied considerably from month to month, and relatively large seasonal decreases in employment occurred in November and December in most all of the cities and towns reporting.

For the week including December 15, 1931, returns were received from 78 municipalities. The number of employees represented and the total amount of the pay rolls, by classes of employees, during the week specified, were as follows:

Table 10. — Number of Persons Employed by 78 Municipalities in Massachusetts in Specified Classes of Work and Amount of Pay Roll in December, 1931.

CLASSES OF EMPLOYEES	Number of Employees	Total Amount of Pay Roll
All classes specified	23,144	\$662,698
<i>Manual workers</i>	<i>19,384</i>	<i>562,804</i>
Street, highway and public works departments	11,627	339,825
Other departments	7,757	222,975
<i>Clerical and other non-manual employees</i>	<i>3,760</i>	<i>99,894</i>

Because of the interest in the extent to which cities and towns employed additional laborers and workmen to help take up the slack in employment in private industry in 1931, the municipalities were requested to report employment and pay-roll data not only for the week including the 15th of the current month, but for the corresponding week of the same month in 1930. Some of the municipal officials failed to furnish such information for the corresponding weeks in 1930, but a tabulation of the returns, which were complete in this respect, shows that there were increases from 10 to 15 per cent in the number of persons employed in each of the weeks in 1931 over the number employed during the corresponding weeks in 1930, for which records were available.

Agriculture. According to the census of agriculture, taken as of April 1, 1930, by the United States Bureau of the Census, the total number of farms in Massachusetts was 25,598, and the number of persons reported as gainfully employed at that time in agricultural pursuits (as determined by the census of population) was 52,706, of whom 21,149 were farmers (owners and tenants). The average number of persons employed on farms was, therefore, only 2.1 persons per farm, approximately, and, in order to secure a fully representative list of reporting agencies, it would be necessary to obtain returns from a very large number of farmers, but as the total number of persons employed in agricultural pursuits in the State constitutes over three per cent of the total number of persons gainfully employed in all industries and occupations, it has seemed desirable that agriculture should be included among the industries covered by the regular monthly surveys made by this Division. After consultation with officials of the State Department of Agriculture, a questionnaire was prepared and sent to those employers of agricultural labor who were believed to have at least five persons in their employ. A list of such employers was obtained from county agricultural agents, and by statistical investigators who were assigned to this branch of the work.

Many of those employed in agriculture are members of the families of the owners or tenants of the farms, while many others are employed only temporarily during the planting and harvesting seasons. In the preparation of the questionnaire, it was necessary, therefore, to provide for the reporting of pay-roll data for three classes of employment: (a) "Year-round" employees, (b) seasonal employees, and (c) members of family (if employed), and, as board and lodging are often provided as part compensation for services, the questionnaire calls for the reporting of the amount of the cash pay roll and the estimated value of "board and lodging," if

provided. Employers are requested to report under these several classifications the number of persons employed during the pay period including or ending nearest the fifteenth of the month, and to exclude from the returns the owners, partners, tenants, managers, and overseers. In tabulating the returns, the pay rolls covering a period greater than one week are reduced to their weekly equivalent, and "board and lodging," if provided, are similarly computed and added to the cash pay roll.

According to the returns thus far received, it appears that nearly all of the farms are operated by the owners or tenants, with the assistance of one or more members of their families, and that, in some cases, additional farm laborers are employed temporarily during the planting and harvesting seasons.

In December, 1931, reports were received from 69 farms, dairies, greenhouses, and other places where agricultural labor was employed. The total number of persons reported as employed was 896, and the weekly pay rolls amounted to \$20,326. This number of employees represented the minimum winter forces, and was less than half the number reported as employed in September, 1931. The reduction of the force was due, principally, to the dismissal of persons employed temporarily to harvest crops, pick and pack fruit and cranberries, and to perform other work of a seasonal nature. The 69 places of employment for which reports were received in December, may be classified as follows: nurseries, wholesale florists, and landscape gardens, 25; dairies and stock farms, 21; farms and market gardens, 14; fruit growers, five; cranberry growers, three; and leaf tobacco growers, one. It was not feasible to present data in detail for such a limited number of reporting agencies, but efforts are being made to obtain a more adequate representation, and it is hoped that it may be possible later to present pay-roll data separately in some detail for the more important classes of work.

Office, Clerical and Miscellaneous Employment. The employers reporting in connection with this survey include banks and trust companies, insurance companies, hotels, theatres, laundries, trucking companies, and certain miscellaneous places of employment for which data cannot be presented in detail.

Beginning in March, 1931, the statistical investigators were assigned to districts and were instructed to call, personally, upon and explain to such employers (of five or more persons), the nature and purpose of this survey, and to request their cooperation. Beginning with about 300 returns in March, the survey has been expanded until over 600 employers are canvassed each month. As in the other surveys, pay-roll data for wage-earners only are requested. The following summary of the returns for December (Table 11) illustrates the nature and extent of this survey.

Table 11. — Number of Persons Employed and Aggregate Weekly Pay Rolls for 598 Establishments in Specified Classes of Employment for One Week in December, 1931

CLASSES OF EMPLOYMENT	Number of Reports	Number of Wage-earners Employed	Aggregate Weekly Pay Roll
<i>Totals — all classes</i>	598	28,613	\$682,165
Banks and trust companies	187	3,652	112,156
Hospitals	24	3,061	45,876
Hotels	91	5,545	88,415
Insurance companies and agencies	53	5,309	140,328
Laundries	58	2,539	50,469
Schools and colleges	11	1,731	65,404
Teaming, trucking, and handling	75	2,636	66,624
Theatres and recreation centers	48	2,256	54,644
All other classes	51	1,884	58,249

Many of the employees in the groups covered were paid on a monthly or a semi-monthly basis and, in certain establishments, such as hotels and hospitals, received board and lodging, in addition to cash compensation for services. For the purpose of this survey and in order that the data might be comparable with data secured in the other surveys made each month, all salaries reported other than on a weekly basis were reduced to their weekly equivalent, and any additional compensation in the form of subsistence was excluded from consideration in computing the pay rolls.

In making the comparison of pay-roll totals for one class of employment as compared with another, these differences in methods of compensating for services should be borne in mind.

The number employed in December, 1931, in the 598 miscellaneous establishments considered in Table 11 was 28,613, and the aggregate weekly pay roll was \$682,165. A sufficiently large number of returns have been received to permit presentation of data separately for eight classes of employment, and a small miscellaneous class.

Included among the hotels are several which operate during the summer and early fall only, and these together employ about 800 persons. Among the insurance companies and agencies are some of the largest organizations of their kind, which supply complete returns for all agencies and branch offices in Massachusetts. The reports from banks and trust companies include their branches as well. The reports for hospitals include what may be termed "institutional employees", such as nurses in training, orderlies, building employees, grounds laborers, etc., but exclude professional employees who are paid on an annual salary basis, attendants and consulting physicians.

The class entitled "theatres and recreation centers" consists largely of theatres, but reports are also received from country clubs, city clubs, associations and other recreational centers. Within the class entitled "laundries", several coat and apron supply companies are included. Under "schools and colleges", those reported as employed consist of office and similar workers, buildings and grounds employees, etc., but the teaching staff is not included. Teaming and trucking companies transport many classes of merchandise, materials and supplies, and this class includes express, parcel delivery, and transfer companies, in addition to those engaged in more general teaming and trucking. The miscellaneous group includes principally advertising agencies and brokerage and investment houses, returns for which are not as yet sufficiently large to warrant separate presentation.

Building Statistics. Statistics of building permits were first collected from 36 cities, beginning in 1919, on a quarterly basis. The original inquiries called merely for a segregation of new building from additions, alterations, and repairs. In 1923 the present detailed form of schedule was adopted, and monthly reports were received from each of 37 cities in Massachusetts for that year, and beginning in January, 1924, from each of the 39 cities. During the past five years the building department officials in 16 of the larger towns have also furnished similar information with reference to building permits applied for in their respective municipalities. Thus, the survey for five years has covered 55 municipalities¹ (all of the 39 cities and 16 of the larger towns). In a majority of the towns not canvassed there are no adequate records of building activities.

The questionnaire used calls for the number of applications filed for permits to build, the value represented thereby, classified by type of structure and intended use, and the number of family accommodations to be provided, classified by the nature of residential building proposed. Mimeographed summaries of the completed returns are issued each month immediately following the month to which these statistics relate.

¹ A list of the 55 cities and towns covered by this monthly survey follows:

39 Cities				
Attleboro	Fall River	Lowell	Newton	Somerville
Beverly	Fitchburg	Lynn	North Adams	Springfield
Boston	Gardner	Malden	Northampton	Taunton
Brockton	Gloucester	Marlborough	Peabody	Waltham
Cambridge	Haverhill	Medford	Pittsfield	Westfield
Chelsea	Holyoke	Melrose	Quincy	Woburn
Chicopee	Lawrence	New Bedford	Revere	Worcester
Everett	Leominster	Newburyport	Salem	
16 Towns				
Arlington	Brookline	Milton	Plymouth	Wellesley
Belmont	Dedham	Needham	Saugus	West Springfield
Braintree	Framingham	Norwood	Watertown	Winchester
				Winthrop

The estimated cost of prospective building in the 55 municipalities for each of the five years 1927-1931, inclusive, are presented in Table 12. These data show that during the year 1931 there was less building in all three classes of projects than in 1930, in which year there was much less building than during any of the three prior years, more particularly new residential building. In each of the three years prior to 1930 the value of new residential building exceeded the value of new non-residential building, usually by quite a large amount; but in 1931 and in 1930 the situation was reversed. The value of work in the nature of additions, alterations and repairs in 1931 was from one-third to one-half less than the corresponding values in each of the four preceding years.

Table 12. — Estimated Cost of Prospective Building in 55 Municipalities in Massachusetts, for the Years 1927-1931, inclusive: By Classes of Projects

YEARS	New Residential Building	New Non-residential Building	Additions, Alterations and Repairs	Totals — All Classes of Projects
1931	\$32,956,935	\$38,495,601	\$14,240,473	\$85,693,009
1930	40,146,313	45,173,157	22,033,838	107,353,308
1929	69,936,017	53,945,280	29,774,203	153,655,500
1928	96,878,609	52,047,563	22,122,372	171,048,544
1927	101,959,226	51,765,595	27,574,615	181,299,436

In the 55 municipalities combined during the year 1931, applications were filed covering 29,189 buildings, and the estimated cost of the work to be undertaken was \$85,693,009. The type of work planned is illustrated by the fact that in the 55 municipalities in 1931, 38.5 per cent of the total cost represented new residential buildings, 44.9 per cent represented new non-residential buildings, and 16.6 per cent represented additions, alterations and repairs. It will be observed from the data by classes of projects that there was a general decline in the amount of new building in 1931 and much less repair work.

The principal data for the years 1930 and 1931 for the 55 municipalities combined are shown in Table 13.

Table 13. — Summary of Prospective Building in 55 Municipalities in Massachusetts, for the Years 1931 and 1930: By Classes of Projects¹

NUMBER AND COST, AND YEARS	Residential Building	New Non-residential Building	Additions, Alterations and Repairs	Totals — All Classes of Projects
<i>55 Municipalities</i>				
Number of buildings:				
1931	4,587	8,392	16,210	29,189
1930	4,931	9,615	16,417	30,963
Estimated cost:				
1931	\$32,956,935	\$38,495,601	\$14,240,473	\$85,693,009
1930	40,146,313	45,173,157	22,033,838	107,353,308

¹ Annual summaries of the data in detail for the individual municipalities have been issued in mimeographed form.

In the 55 municipalities canvassed, 3,988, or 86.9 per cent of the 4,587 dwellings planned were of the one-family type. The next largest group comprised 501 two-family dwellings, or 10.9 per cent. Of the total estimated cost (\$32,956,935) of the new residential building, \$24,067,895, or 73.0 per cent, represented one-family houses; \$4,107,440, or 12.5 per cent, represented multi-family dwellings; and \$3,847,000, or 11.7 per cent, represented two-family dwellings.

In Table 14 data are presented showing, by classes of structures, the number of new residential buildings for which permits to build were granted, the estimated cost of such buildings, and the number of family accommodations to be provided in one-family, two-family, and multi-family houses, and, for non-residential buildings, the number of buildings to be erected, the estimated cost of such buildings, and the estimated cost of additions, alterations, and repairs.

Table 14. — *Summary of Prospective Building in 55 Municipalities in Massachusetts During the Year 1931: By Classes of Structures*

1 — NEW RESIDENTIAL BUILDINGS

CLASSES OF STRUCTURES	Number of Buildings	Estimated Cost	Number of Family Accommodations
Housekeeping dwellings:			
One-family dwellings	3,988	\$24,067,895	3,988
Two-family dwellings	501	3,847,000	1,002
One-family and two-family dwellings with stores or shops therewith	10	62,100	13
Multi-family dwellings (three or more families).	78	4,107,440	1,164
Multi-family dwellings with stores or shops therewith	1	5,500	2
Non-housekeeping dwellings:			
Bachelor apartments, dormitories, club and association buildings with bedrooms	5	525,000	—
Hotels	1	175,000	—
Lodging houses and other non-housekeeping dwellings	3	167,000	—
<i>Total — New residential buildings</i>	<i>4,587</i>	<i>\$32,956,935</i>	<i>6,179</i>

2 — NEW NON-RESIDENTIAL BUILDINGS, AND ADDITIONS, ALTERATIONS, AND REPAIRS

CLASSES OF STRUCTURES	Number of Buildings	Estimated Cost	Rank on Basis of Cost
New non-residential buildings:			
Amusement and recreation places (including club buildings without bedrooms)	54	\$2,225,975	8
Churches, chapels, and parish houses	31	2,271,559	7
Factories, bakeries, ice-plants, greenhouses, laundries, and other workshops	126	985,741	10
Garages, public	94	404,025	13
Garages, private	6,178	2,554,893	5
Gasoline and service stations	210	672,645	12
Institutional buildings	24	3,143,150	4
Office buildings, including banks	42	3,770,604	3
Public buildings, including libraries and museums	25	7,106,881	2
Public works and utilities	26	2,461,846	6
Schools, grade and high (public and private)	55	10,245,516	1
Sheds, poultry houses, and other minor outbuildings	1,011	380,537	14
Storage warehouses, coal pockets, lumber sheds, etc.	153	880,739	11
Stores, restaurants, and other mercantile buildings	280	1,237,060	9
All other non-residential buildings	83	154,430	—
<i>Totals — New non-residential buildings</i>	<i>8,392</i>	<i>\$38,495,601</i>	<i>—</i>
<i>Additions, alterations, and repairs</i>	<i>16,210</i>	<i>\$14,240,473</i>	<i>—</i>

Of the 6,169 family accommodations provided, 3,988 one-family dwellings provided the largest number, or 64.6 per cent of the total; followed by multi-family dwellings with 1,164 accommodations, or 18.9 per cent, and two-family dwellings with 1,002 accommodations, or 16.2 per cent; and there were only 15 family accommodations to be provided in dwellings with stores or shops.

The total number of new non-residential buildings planned in the 55 municipalities in 1931 was 8,392, estimated to cost \$38,495,601. On the basis of cost, 55 grade and high school buildings represented the largest class, with an estimated cost of \$10,245,516 (26.6 per cent). The second largest group included 25 public buildings with an estimated cost of \$7,106,881 (18.5 per cent) and the third largest group consisted of 42 office buildings, including banks, with an estimated cost of \$3,770,604 (9.8 per cent). On the basis of the *number* of buildings provided the 6,178 garages led all other groups and constituted 73.6 per cent of the total number of non-residential buildings planned.

The estimated cost of additions, alterations, and repairs in 1931, represented by 16,210 permits granted, amounted to \$14,240,473, or about two-thirds of the value represented by the 16,417 permits granted the year before.

II. INFORMATION SERVICE

The answering of inquiries relative to labor and industrial matters is an important function of this division and the demand for information, particularly with reference to employment conditions, has increased greatly during the period of depression. The subjects which, according to inquiries received during the past year, were of special interest were: unemployment, unemployment insurance and relief measures, employment age limitations, mergers in industry, employment of women and children, conditions in the cotton and woolen manufacturing industries, industrial hazards, cost of living, and industrial and recreational opportunities in the State.

In most instances the information desired was available in the printed reports and mimeographed press notices issued by the department, but occasionally special tabulations and surveys were made in order to answer inquiries calling for information in greater detail. In those cases where the amount of work involved was large, the salaries of the special clerks employed thereon were paid by the organization requesting the information.

A reference library, maintained primarily for the use of the officials of the department, is also used extensively by persons seeking information relative to industrial questions. Several special legislative commissions, which have been appointed for the purpose of making investigations in the industrial field, have made considerable use of the reference library, and the demands upon it have continued to increase. Two employees devote full time to this work and, from time to time, it is necessary to employ temporary clerical assistants.

The value of the library, with its wealth of reference material, cannot be measured merely by the number of volumes, but may best be measured by the use made of the reference material there on file, which consists of 3,500 bound volumes, 1,200 pamphlets, 24 quarterlies, 190 monthlies, 46 weeklies, 11 bi-weeklies, 16 daily newspapers, and miscellaneous mimeographed reports received from the Federal Government. A large number of these reports are received on an exchange basis with other state labor departments, trade unions and private organizations, and these reports are indexed, examined, and clipped, and the material distributed to members of the department or filed for future reference.

The news clipping service maintained by the library has increased considerably on account of the present conditions, and an effort is made to keep the members of the department advised of industrial conditions in the country, and particularly within this state.

III. STATISTICS OF MANUFACTURES, 1930

Introductory. The census of manufactures, for the year 1930, taken by the division of statistics, furnishes an official measure of the extent of the world-wide industrial depression, as it affected this commonwealth, in that year. According to the final returns, the total number of manufacturing establishments in operation during the year 1930 was 9,586; the total value of products manufactured in these establishments amounted to \$2,676,387,256; the value of stock and materials used in manufacture amounted to \$1,333,317,227; and the difference between these amounts (\$1,343,070,029) represents the *value added* by the various manufacturing processes. The average number of wage-earners employed in the 9,586 establishments was 481,449, and the total amount paid in wages was \$573,838,044.

A comparison of the totals for 1930 with the corresponding final totals for 1929 shows that there was a drop to a new low level, and the value of products registered a decrease of 21.2 per cent; value of stock and materials used, 20.6 per cent; value added by manufacture, 21.7 per cent; total amount paid in wages, 17.4 per cent; and average number of wage-earners employed, 13.6 per cent.

In order to make public at the earliest possible moment the data for municipalities and the industries therein, preliminary tabulations were made and the results issued in the form of press notices.¹

¹ This series of press notices was issued under the title "Manufactures Press Notices", and included the following:

Nos. 1-39. *Individual Cities.* A separate press notice for each of the 39 cities containing data, by principal industries, for 1930 with comparable data for specified industries for certain prior years.

No. 40. *Summary by Cities.* Totals only for each city, 1930.

No. 41. *General Summary for the State.* Principal data by years, 1913-1930.

No. 42. *Summary by Towns.* Totals only for each town, 1930.

No. 43. *Metropolitan Boston.* Principal data by municipalities, 1930.

No. 44. *Summary by Industries.* Principal data for leading industries, 1930, with comparable data for the years 1919-1930.

SUMMARY OF PRINCIPAL DATA, 1913 TO 1930

All Industries, Combined. In order to show the general industrial trend in Massachusetts for a series of years, the principal data for all manufacturing industries, combined, for the years 1913 to 1930, inclusive, are presented in Table 15. In making comparisons for the several years of the money values presented in this summary, due allowance should be made for price fluctuations from year to year. The values of products manufactured do not necessarily represent the relative volume of goods produced in the several years.

Table 15. — *Principal Data Relative to Manufacturing in Massachusetts, All Industries Combined, 1913-1930, inclusive*

YEARS	Number of Establishments	Capital Invested	Value of Stock and Materials Used	Amount of Wages Paid during the Year	Average Number of Wage-earners Employed	Value of Products	Value Added by Manufacture
1913	8,405	\$1,345,461,875	\$961,778,476	\$351,299,706	616,927	\$1,658,728,363	\$696,949,887
1914	12,013 ¹	1,548,960,733	931,383,793	341,309,517	606,698	1,641,373,047	709,989,254
1915	9,707	1,550,080,995	959,662,457	346,243,472	596,348	1,692,445,366	732,782,909
1916	9,829	1,791,050,092	1,354,433,202	447,957,731	682,621	2,349,933,003	995,499,801
1917	9,865	2,239,848,630	1,782,440,354	537,144,629	708,421	3,020,557,545	1,238,117,191
1918	9,695	2,510,730,295	2,249,822,722	679,401,273	719,210	3,851,346,215	1,601,523,493
1919	11,906 ¹	2,962,108,527	2,260,713,036	766,623,337	713,836	4,011,181,532	1,750,468,496
1920	10,262	2,987,620,867	2,489,237,446	891,176,822	695,832	4,370,276,822	1,881,039,376
1921	9,994 ¹	²	1,441,035,230	641,360,936	579,071	2,849,413,516	1,408,378,286
1922	10,056	2,822,014,756	1,512,510,105	678,073,968	612,682	3,002,625,958	1,490,115,853
1923	10,519 ¹	²	1,835,218,349	799,363,111	667,443	3,570,543,265	1,735,324,916
1924	10,174	2,853,590,206	1,629,342,134	711,812,104	589,364	3,126,137,145	1,496,795,011
1925	10,027 ¹	²	1,794,643,051	716,155,593	591,438	3,426,617,326	1,631,974,275
1926	9,903	2,819,189,700	1,790,611,294	738,208,510	602,343	3,419,814,877	1,629,203,583
1927	10,037 ¹	²	1,678,812,411	705,929,549	578,068	3,317,851,888	1,639,039,477
1928	9,971	2,735,070,138	1,663,155,564	670,063,291	540,927	3,224,227,651	1,561,072,087
1929	9,871 ¹	²	1,678,821,555	694,488,088	557,198	3,394,420,167	1,715,598,612
1930	9,586	2,483,589,920	1,333,317,227	573,838,044	481,449	2,676,387,256	1,343,070,029

¹ The Census of Manufactures for the years 1914, 1919, 1921, 1923, 1925, 1927, and 1929 included certain establishments not canvassed in the other years, but these establishments added relatively little to the other items specified.

² Not called for on the questionnaire.

Cities. Principal data having reference to manufactures in each of the 39 cities of the commonwealth, with totals for the state and for the 316 towns grouped together, are presented in Table 16.

The total value of products manufactured in the 39 cities in 1930 was \$2,117,152,948, and constituted 79.1 per cent of the aggregate value (\$2,676,387,256) of all products manufactured in the commonwealth in that year, and the average number of wage-earners (368,416) employed in the manufacturing industries in the 39 cities, constituted 76.5 per cent of the average number of wage-earners (481,449) employed in all manufacturing establishments in the state.

As a manufacturing center Boston ranked first among the cities of the commonwealth and the value of the products manufactured in the city, in 1930, was \$504,283,916, constituting 18.8 per cent of the aggregate value of all products manufactured in the entire state during the year. In order of importance, based on the value of products manufactured in 1930, the twenty leading cities were: Boston, Worcester, Cambridge, Somerville, Lawrence, Springfield, Lynn, New Bedford, Fall River, Everett, Chicopee, Holyoke, Brockton, Lowell, Pittsfield, Haverhill, Fitchburg, Peabody, Quincy, and Salem.

Table 16. — *Principal Data Relative to Manufactures in the 39 Cities in Massachusetts, 1930*

(Preliminary tabulation subject to minor correction)

CITIES	Number of Establishments	Value of Stock and Materials Used	Amount of Wages Paid during the Year	Average Number of Wage-earners Employed	Value of Products
The State	9,586	\$1,333,317,227	\$573,838,044	481,449	\$2,676,387,256
<i>39 Cities</i>	<i>7,755</i>	<i>1,053,913,823</i>	<i>444,749,613</i>	<i>368,416</i>	<i>2,117,152,948</i>
Attleboro	135	11,957,421	6,214,457	5,213	24,623,241
Beverly	45	2,849,659	5,130,851	3,685	10,472,144
Boston	2,589	248,140,606	93,644,132	68,516	504,283,916
Brockton	259	29,352,717	13,648,271	11,698	58,223,674
Cambridge	385	63,690,200	24,519,334	19,364	158,557,028
Chelsea	119	9,270,871	5,642,376	4,456	21,516,977
Chicopee	53	28,865,597	10,502,771	8,179	59,500,660
Everett	112	38,708,057	8,485,627	5,372	71,985,162
Fall River	234	43,697,781	18,830,586	21,344	73,686,998
Fitchburg	105	18,380,707	6,819,423	5,779	33,616,920
Gardner	75	6,078,440	4,231,156	3,707	15,017,158
Gloucester	76	7,327,545	2,275,899	1,962	13,038,878
Haverhill	268	18,736,524	8,928,358	8,082	36,043,439
Holyoke	152	27,417,521	13,339,427	11,470	58,425,624
Lawrence	175	59,664,453	23,144,176	20,582	101,525,386
Leominster	73	6,794,841	4,485,773	4,737	17,115,225
Lowell	218	27,438,472	13,551,606	13,981	52,993,543
Lynn	349	35,030,038	23,151,814	17,699	84,823,563
Malden	101	10,614,596	3,509,079	3,249	23,450,624
Marlborough	30	4,537,918	2,314,483	2,466	8,495,065
Medford	55	3,036,697	1,145,605	923	5,765,081
Melrose	24	1,040,028	391,220	334	1,971,848
New Bedford	199	40,447,985	24,568,746	25,739	81,158,875
Newburyport	49	5,281,373	3,040,243	2,783	10,982,490
Newton	67	6,184,448	3,412,110	2,784	15,159,251
North Adams	43	9,550,599	3,870,008	3,561	17,581,203
Northampton	49	4,149,196	3,008,197	2,677	10,197,581
Peabody	81	18,194,720	6,989,546	5,690	31,531,214
Pittsfield	57	21,755,939	11,176,170	8,331	42,760,317
Quincy	161	12,647,887	8,441,954	5,933	28,542,451
Revere	17	340,550	200,124	166	923,893
Salem	120	11,733,431	5,354,985	4,777	26,034,119
Somerville	143	79,082,570	9,935,886	7,134	103,689,027
Springfield	318	37,429,231	20,256,910	15,613	93,267,379
Taunton	98	12,077,019	5,524,814	5,114	24,614,038
Waltham	87	4,738,087	4,825,133	4,013	13,523,021
Westfield	62	3,880,701	2,167,608	2,017	9,204,672
Woburn	45	6,398,326	2,518,364	1,760	11,559,256
Worcester	527	77,391,072	35,552,391	27,526	161,292,007
<i>316 Towns</i>	<i>1,831</i>	<i>279,403,404</i>	<i>129,088,431</i>	<i>113,033</i>	<i>559,234,308</i>

Towns. The total value of products manufactured in the 316 towns in 1930 (\$559,234,308) constituted 20.9 per cent of the aggregate value (\$2,676,387,256) of all products manufactured in the commonwealth in that year, and the average number of wage-earners (113,033) employed in the manufacturing industries in the 316 towns constituted 23.5 per cent of the average number of wage-earners (481,449) employed in all manufacturing establishments in the state.

In order of importance, based on the value of products manufactured in 1930, the ten leading manufacturing towns were: Watertown, Framingham, Norwood, Walpole, West Springfield, Braintree, Plymouth, Southbridge, Easthampton, and Athol.

Principal data relative to manufacturing in each of the towns of the commonwealth, for which figures may be presented, without disclosing the operations of individual establishments, are given in Table 17.

*Table 17. — Principal Data Relative to Manufactures in the 316 Towns
in Massachusetts, 1930*
(Preliminary tabulation subject to minor correction)

TOWNS	Number of Estab- lish- ments	Value of Stock and Materials Used	Amount of Wages Paid during the Year	Average Number of Wage-earners Employed	Value of Products
The State	9,586	\$1,333,317,227	\$573,838,044	481,449	\$2,676,387,256
39 Cities	7,755	1,053,913,823	444,749,613	368,416	2,117,152,948
316 Towns	1,831	279,403,404	129,088,431	113,033	559,234,308
Abington	17	1,658,361	719,413	684	3,429,625
Acton	6	828,794	304,673	243	1,557,487
Adams	24	3,173,187	2,351,388	2,756	7,482,315
Amesbury	29	4,217,746	2,241,095	2,217	8,249,296
Amherst	11	369,190	253,900	202	830,814
Andover	16	4,185,696	1,937,473	1,627	8,683,880
Arlington	26	670,492	331,459	221	1,636,968
Ashburnham	6	296,773	365,557	351	900,231
Ashland	6	1,200,280	456,199	384	3,152,208
Athol	35	3,258,647	2,397,120	2,341	9,870,069
Ayer	9	98,810	114,640	95	316,344
Barnstable	7	64,771	74,490	61	251,469
Barre	5	1,365,356	784,461	662	2,422,561
Becket	5	121,480	82,104	68	289,113
Belmont	9	51,028	65,667	51	173,031
Billerica	9	4,506,596	2,024,353	1,497	7,906,003
Braintree	22	11,494,331	1,926,918	1,455	15,221,157
Bridgewater	12	2,649,441	1,115,649	1,136	4,628,339
Brookline	20	1,001,891	402,287	421	2,099,342
Canton	22	3,569,559	1,282,265	1,240	7,034,553
Chelmsford	10	369,181	494,459	381	1,398,462
Chester	4	211,903	214,158	173	783,378
Clinton	21	4,728,462	2,033,239	1,830	9,398,672
Concord	11	244,130	187,710	160	571,769
Dalton	7	1,759,346	875,025	830	4,236,042
Danvers	15	1,281,342	494,724	530	2,521,468
Dedham	14	488,536	344,771	292	1,002,151
Deerfield	8	566,141	111,871	82	823,138
Dudley	6	1,910,807	831,597	784	3,410,672
East Bridgewater	6	435,091	481,305	380	1,461,723
Easthampton	14	8,857,416	2,589,103	2,846	12,731,982
Easton	7	1,076,001	511,626	422	2,032,173
Foxborough	9	795,350	597,889	503	3,187,280
Frammingham	43	9,953,193	4,228,356	3,238	18,318,656
Franklin	20	2,703,887	1,032,655	774	4,953,624
Grafton	8	1,522,167	1,002,888	1,030	3,049,166
Great Barrington	15	1,093,566	726,176	651	2,402,323
Greenfield	37	1,480,590	1,759,768	1,358	5,732,597
Hanover	5	595,209	425,264	529	1,543,184
Hingham	3	10,977	29,319	19	50,764
Hudson	25	3,177,260	2,464,319	2,245	8,802,341
Lee	9	1,154,030	641,567	514	2,488,878
Leicester	6	850,361	374,011	360	1,181,705
Lynnfield	3	22,042	15,424	10	61,083
Mansfield	16	1,715,527	742,331	639	3,346,800
Marblehead	16	185,813	212,140	207	535,329
Medway	7	495,819	365,365	322	1,053,792
Merrimac	6	258,577	273,028	218	755,417
Methuen	21	3,959,863	1,278,457	1,401	5,899,480
Middleborough	19	1,863,203	701,310	718	3,676,879
Millford	28	2,658,957	1,462,868	1,253	5,114,667
Millbury	22	3,356,816	1,194,565	1,076	5,738,792
Milton	9	114,323	94,615	62	368,039
Montague	19	2,967,063	1,589,708	1,323	6,070,186
Natick	30	2,405,718	772,444	694	3,992,755
Needham	27	1,723,130	669,168	645	3,830,047
North Andover	7	1,926,381	1,318,520	1,083	3,762,642
North Attleborough	64	3,249,783	2,755,758	2,215	9,025,481
North Brookfield	6	1,872,090	785,355	705	3,599,576
Northbridge	8	2,698,622	2,625,896	2,598	7,723,264
Norton	8	319,623	409,469	368	1,046,355
Norwood	23	8,092,559	3,531,684	2,396	18,195,125
Orange	19	1,213,153	690,488	640	3,895,594
Oxford	8	835,723	522,731	589	1,525,401
Palmer	18	3,310,588	1,877,323	1,845	7,113,474
Plymouth	16	8,796,087	2,115,718	1,803	15,221,068
Provincetown	4	17,955	9,803	10	39,020
Randolph	7	620,298	283,680	265	1,105,553
Reading	15	1,700,518	508,378	382	2,881,840
Rockland	19	3,054,890	1,252,225	1,109	5,630,649
Saugus	11	177,693	106,712	79	408,782
Sharon	4	64,931	24,936	23	127,457
South Hadley	10	966,040	460,062	370	2,047,699

Table 17. — *Principal Data Relative to Manufactures in the 316 Towns in Massachusetts, 1930 — Concluded*
(Preliminary tabulation subject to minor correction)

TOWNS	Number of Establishments	Value of Stock and Materials Used	Amount of Wages Paid during the Year	Average Number of Wage-earners Employed	Value of Products
Southbridge	30	\$5,369,449	\$3,729,625	3,341	\$13,997,595
Spencer	14	3,356,202	1,266,349	1,278	5,296,972
Stoneham	15	1,329,967	490,130	756	2,461,817
Stoughton	26	3,870,857	1,469,498	1,268	7,489,007
Swampscott	8	107,540	55,263	45	236,300
Templeton	13	869,641	578,625	512	1,996,666
Townsend	5	454,773	256,225	234	933,666
Uxbridge	8	5,611,800	1,357,376	1,081	8,264,546
Wakefield	28	2,806,894	1,546,161	1,334	6,251,107
Walpole	13	11,612,689	2,141,366	1,565	17,909,929
Ware	17	2,601,218	1,115,440	1,228	4,503,006
Wareham	8	356,312	99,257	98	939,666
Warren	6	1,072,358	650,974	653	2,281,574
Watertown	41	15,767,369	7,650,356	6,302	33,038,459
Webster	20	4,860,923	2,856,350	2,557	9,686,372
Wellesley	8	405,635	223,971	140	2,153,939
West Springfield	28	9,002,786	4,540,608	2,869	17,275,714
West Stockbridge	4	78,456	45,605	39	141,788
Westborough	14	849,632	346,473	355	1,545,031
Weymouth	22	4,176,767	1,494,032	1,447	8,161,107
Whitman	21	4,882,638	1,886,187	1,537	8,556,145
Winchendon	17	1,782,397	1,178,854	1,183	4,338,330
Winchester	17	2,006,240	772,128	602	3,435,555
Winthrop	9	181,402	58,571	47	364,745
All other towns ¹	370	45,298,299	22,945,935	19,871	95,966,073

¹ For 146 towns data cannot be presented without disclosing the operations of individual establishments, and in 73 towns there were no manufacturing establishments coming within the scope of the census canvass: *i.e.*, with product values in excess of \$5,000.

Metropolitan Boston. As defined for purposes of the census of manufactures in Massachusetts, Metropolitan Boston formerly comprised 14 cities and 26 towns included within a radius of about 15 miles from the State House in Boston. The territory was extended, for the years 1929 and 1930, so as to include the additional towns of Norwood, Stoughton, and Walpole. Within this area were located 4,652 manufacturing establishments in which products valued at \$1,181,391,542 were manufactured in 1930. The average number of wage-earners employed in these establishments during the year was 162,699, and the total amount paid in wages was \$215,334,364. The number of manufacturing establishments in Metropolitan Boston in 1930 constituted 48.5 per cent of the total number (9,586) in the entire state; the value of products manufactured constituted 44.1 per cent of the total value of all products manufactured in the state; and the number of wage-earners in the district was 33.8 per cent of the total number employed in all manufacturing establishments in the state.

Principal data relative to manufacturing in each of the cities and towns in Metropolitan Boston in 1930 are presented in Table 18, and the totals for Metropolitan Boston for each of the years 1921 to 1930, inclusive, are presented in Table 19.

Table 18. — Principal Data Relative to Manufactures in Metropolitan Boston, 1930. By Cities and Towns
(Preliminary tabulation subject to minor correction)

MUNICIPALITIES	Number of Establishments	Value of Stock and Materials Used	Amount of Wages Paid during the Year	Average Number of Wage-earners Employed	Value of Products
Metropolitan Boston	4,652	\$500,738,808	\$215,334,364	162,699	\$1,181,391,542
<i>The 14 Cities</i>	<i>4,254</i>	<i>518,922,961</i>	<i>189,822,758</i>	<i>141,703</i>	<i>1,045,751,099</i>
Boston	2,589	248,140,606	93,644,132	68,516	504,283,916
Cambridge	385	63,690,200	24,519,334	19,364	158,557,028
Chelsea	119	9,270,871	5,642,376	4,456	21,516,977
Everett	112	38,708,057	8,485,627	5,372	71,985,162
Lynn	349	35,030,038	23,151,814	17,699	84,823,563
Malden	101	10,614,596	3,509,079	3,249	23,450,624
Medford	55	3,036,697	1,145,605	923	5,765,081
Melrose	24	1,040,028	391,220	334	1,971,848
Newton	67	6,184,448	3,412,110	2,784	15,159,251
Quincy	161	12,647,887	8,441,954	5,933	28,542,451
Revere	17	340,550	200,124	166	923,893
Somerville	143	79,082,570	9,935,886	7,134	103,689,027
Waltham	87	4,738,087	4,825,133	4,013	13,523,021
Woburn	45	6,398,326	2,518,364	1,760	11,559,256
<i>The 29 Towns</i>	<i>398</i>	<i>71,815,847</i>	<i>25,511,606</i>	<i>20,996</i>	<i>135,640,444</i>
Arlington	26	670,492	331,459	221	1,636,968
Belmont	9	51,028	65,667	51	173,031
Braintree	22	11,494,331	1,926,918	1,455	15,221,157
Brookline	20	1,001,891	402,287	421	2,099,342
Canton	22	3,569,559	1,282,265	1,240	7,034,553
Dedham	14	488,536	344,771	292	1,002,151
Hingham	3	10,977	29,319	19	50,764
Milton	9	114,323	94,615	62	368,039
Needham	27	1,723,130	669,168	645	3,830,047
Norwood	23	8,092,559	3,531,684	2,396	18,195,125
Reading	15	1,700,518	508,378	382	2,881,840
Saugus	11	177,693	106,712	79	408,782
Stoneham	15	1,329,967	490,130	756	2,461,817
Stoughton	26	3,870,857	1,469,498	1,268	7,489,007
Swampscott	8	107,540	55,263	45	236,300
Wakefield	28	2,806,894	1,546,161	1,334	6,251,107
Walpole	13	11,612,689	2,141,366	1,565	17,909,929
Watertown	41	15,767,369	7,650,356	6,302	33,038,459
Wellesley	8	405,635	223,971	140	2,153,939
Weymouth	22	4,176,767	1,494,032	1,447	8,161,107
Winchester	17	2,006,240	772,128	602	3,435,555
Winthrop	9	181,402	58,571	47	364,745
<i>7 other towns¹</i>	<i>10</i>	<i>455,450</i>	<i>316,887</i>	<i>227</i>	<i>1,236,680</i>

¹ Includes two towns (Hull and Nahant) in which there were no manufacturing establishments, and five towns (Cohasset, Dover, Lexington, Weston, and Westwood) for which data cannot be shown separately without disclosing the operations of individual establishments.

Table 19. — Principal Data Relative to Manufactures in Metropolitan Boston, 1921-1930

YEARS	Number of Establishments	Capital Invested	Value of Stock and Materials Used	Amount of Wages Paid during the Year	Average Number of Wage-earners Employed	Value of Products
<i>All Industries</i>						
1921	4,508	¹	\$519,832,014	\$202,173,388	168,313	\$1,025,586,110
1922	4,482	\$804,668,324	537,911,241	210,657,440	178,343	1,070,493,317
1923	4,740	¹	620,031,648	245,640,825	193,000	1,232,206,787
1924	4,561	849,235,200	584,512,038	230,727,844	178,487	1,148,260,013
1925	4,511	¹	606,378,433	231,857,192	175,801	1,235,875,285
1926	4,577	851,797,589	639,566,767	245,916,443	184,814	1,272,959,199
1927	4,755	¹	633,003,950	237,708,229	178,316	1,289,801,723
1928	4,713	897,124,478	648,665,366	235,017,427	174,522	1,278,895,983
1929 ²	4,831	¹	688,277,589	248,419,990	182,780	1,409,136,706
1930 ²	4,652	866,181,625	590,738,808	215,334,364	162,699	1,181,391,542

¹ Not called for on the questionnaire.

² The district was extended to include the towns of Norwood, Stoughton, and Walpole, for the years 1929 and 1930.

Principal Industries. For the purpose of showing the trends of the leading industries in Massachusetts during the period, 1919 to 1930, inclusive, the principal data are presented by years, in Table 20.

Table 20. — Comparisons of Principal Data, for the Leading Manufacturing Industries, 1919-1930

YEARS	Number of Establishments	Value of Stock and Materials Used	Amount of Wages Paid during the Year	Average Number of Wage-earners Employed	Value of Products
<i>All Industries</i>					
1919	11,906	\$2,260,713,036	\$766,623,337	713,836	\$4,011,181,532
1920	10,262	2,489,237,446	891,176,822	695,832	4,370,276,822
1921	9,994	1,441,033,230	641,360,936	579,071	2,849,413,516
1922	10,056	1,512,510,105	678,073,968	612,682	3,002,625,958
1923	10,519	1,835,218,349	799,363,111	667,443	3,570,543,265
1924	10,174	1,629,342,134	711,812,104	589,364	3,126,137,145
1925	10,027	1,794,643,051	716,155,593	591,438	3,426,617,326
1926	9,903	1,790,611,294	738,208,510	602,343	3,419,814,877
1927	10,037	1,678,812,411	705,929,549	578,068	3,317,851,888
1928	9,971	1,663,155,564	670,063,201	540,927	3,224,227,651
1929	9,871	1,678,821,555	694,488,088	557,198	3,394,420,167
1930	9,586	1,333,317,227	573,838,044	481,449	2,676,387,256
<i>Boots and Shoes, including Boot and Shoe Cut Stock and Findings¹</i>					
1919	929	367,219,079	99,588,742	90,693	573,037,489
1920	911	333,353,041	95,007,509	77,401	533,685,952
1921	924	192,827,997	83,528,723	70,897	348,939,529
1922	1,000	188,920,790	88,152,648	77,700	346,585,683
1923	1,012	194,492,879	90,838,365	76,746	359,513,513
1924	948	163,100,210	79,732,475	69,505	307,234,609
1925	944	164,777,576	73,492,380	64,396	307,021,475
1926	869	174,440,371	79,418,008	67,544	317,973,155
1927	862	180,479,982	74,112,280	63,749	321,640,706
1928	817	190,020,883	72,157,971	63,093	322,863,580
1929	797	180,198,321	72,597,015	62,751	319,788,854
1930	769	138,191,820	58,156,338	56,022	244,417,741
<i>Woolen and Worsted Goods</i>					
1919	182	212,710,061	56,749,563	53,864	342,626,145
1920	186	218,013,382	66,844,648	51,689	344,532,434
1921	180	142,163,532	63,230,393	56,644	262,633,663
1922	189	137,145,274	61,391,289	55,886	266,054,554
1923	186	202,207,973	76,189,812	64,842	352,136,045
1924	190	171,426,748	65,563,390	54,277	280,002,109
1925	187	200,289,254	64,931,507	54,876	309,528,290
1926	180	187,787,996	61,952,399	54,638	295,175,084
1927	174	163,149,995	58,035,387	51,064	268,835,806
1928	171	145,440,485	51,882,279	45,248	234,206,586
1929	156	144,305,423	52,280,778	45,673	242,898,460
1930	145	92,027,443	39,245,500	35,104	156,943,782
<i>Cotton Goods, excluding Cotton Small Wares</i>					
1919	191	359,675,239	109,902,503	122,499	596,880,441
1920	191	415,501,520	130,905,309	113,145	686,571,606
1921	182	153,725,300	96,547,054	106,337	313,829,605
1922	187	185,934,180	103,016,087	111,165	366,030,361
1923	191	223,569,567	115,080,841	113,707	415,922,838
1924	178	175,089,768	86,795,081	89,095	296,831,284
1925	178	200,972,528	91,812,779	96,182	345,864,097
1926	173	166,821,709	88,865,550	91,466	292,063,441
1927	163	145,630,938	88,089,667	90,875	284,706,007
1928	153	120,815,771	61,215,058	65,192	216,997,848
1929	134	124,452,393	65,263,514	70,419	235,864,628
1930	134	79,531,622	47,363,957	53,745	151,834,379
<i>Electrical Machinery, Apparatus, and Supplies</i>					
1919	110	31,837,076	27,649,667	23,889	91,938,738
1920	105	48,894,162	38,289,830	28,561	126,861,130
1921	105	27,951,204	20,348,264	17,635	72,407,824
1922	116	33,043,527	24,930,824	19,064	93,083,923
1923	130	43,889,975	34,482,705	26,350	117,575,926
1924	130	48,721,722	33,227,577	24,523	129,905,665
1925	116	43,794,331	35,109,393	25,065	147,056,901
1926	128	64,534,132	39,142,134	27,899	177,148,280
1927	122	42,197,890	33,903,793	24,759	139,348,725
1928	120	56,874,825	33,972,583	24,788	156,081,762
1929	106	64,323,253	41,011,734	28,844	184,786,044
1930	111	45,095,735	31,948,815	24,217	120,334,062

Table 20. — Comparisons of Principal Data, for the Leading Manufacturing Industries, 1919-1930 — Continued

YEARS	Number of Establishments	Value of Stock and Materials Used	Amount of Wages Paid during the Year	Average Number of Wage-earners Employed	Value of Products
<i>Printing and Publishing</i>					
1919	1,198 ²	\$29,715,273	\$16,455,124	13,661	\$90,136,994
1920	775	32,873,508	19,245,705	12,969	83,897,559
1921	890 ²	35,301,875	19,841,638	12,764	106,850,504
1922	685	30,445,672	21,052,626	13,466	85,697,580
1923	917 ²	33,835,083	23,289,201	14,238	117,436,792
1924	756	30,323,839	23,701,120	13,908	93,698,513
1925	951 ²	34,561,352	24,609,306	14,231	125,176,183
1926	748	34,035,042	25,436,679	14,713	107,283,046
1927	1,022 ²	35,368,221	25,482,123	14,382	131,975,238
1928	821	34,795,664	26,594,305	14,634	112,243,252
1929	1,000 ²	35,245,364	28,115,167	15,199	140,481,332
1930	799	32,050,850	27,077,682	15,051	111,526,855
<i>Foundry and Machine-Shop Products</i>					
1919	575	39,360,048	36,734,431	27,801	112,274,485
1920	569	68,534,988	52,459,471	34,473	166,340,007
1921	515	35,452,972	26,755,815	20,021	112,172,802
1922	541	29,172,980	27,306,697	20,837	86,448,581
1923	553	38,728,025	36,267,289	24,660	114,929,133
1924	539	37,993,215	32,473,734	22,414	106,461,283
1925	500	31,046,164	28,919,791	19,541	90,638,434
1926	502	34,479,344	30,851,687	20,419	99,321,009
1927	496	30,759,703	30,059,274	19,898	94,149,409
1928	475	32,606,432	30,447,463	19,803	99,613,068
1929	465	36,893,962	32,969,609	21,243	114,965,036
1930	442	28,219,034	27,582,822	18,492	88,162,402
<i>Bread and other Bakery Products</i>					
1919	1,309	40,586,783	9,336,181	8,583	66,017,267
1920	1,083	47,216,099	11,132,441	8,698	76,825,786
1921	1,125	33,596,767	11,328,144	8,852	63,972,784
1922	1,026	30,666,836	10,557,076	9,185	60,836,491
1923	1,099	32,379,305	11,974,120	9,288	64,733,168
1924	1,072	32,793,242	12,022,863	9,200	65,723,363
1925	1,031	36,517,214	11,390,333	8,429	68,845,944
1926	1,090	38,573,698	11,558,473	8,697	74,014,253
1927	1,044	37,101,802	11,028,342	8,473	73,706,221
1928	1,108	38,297,898	11,351,600	8,770	76,006,262
1929	1,077	39,674,330	13,701,195	10,414	80,270,302
1930	1,132	36,656,100	13,036,847	10,041	78,462,469
<i>Paper and Wood Pulp</i>					
1919	78	53,763,884	14,642,413	12,960	87,159,890
1920	82	89,158,276	21,633,105	15,215	145,017,866
1921	81	40,614,356	12,592,648	12,427	62,865,216
1922	79	49,356,524	15,004,725	13,490	84,440,050
1923	82	57,601,310	17,085,424	13,324	93,641,621
1924	81	53,194,877	17,047,879	13,423	90,146,594
1925	84	54,854,405	16,424,005	12,915	90,126,831
1926	83	56,818,516	17,467,461	13,205	98,598,943
1927	83	51,815,477	15,904,292	12,368	93,177,974
1928	84	53,105,186	16,420,703	12,602	93,939,888
1929	76	50,091,469	16,642,093	12,362	95,084,573
1930	76	41,204,938	14,881,473	11,603	78,339,273
<i>Dyeing and Finishing Textiles</i>					
1919	62	44,209,538	12,240,747	12,321	75,261,815
1920	66	63,246,501	18,872,562	16,292	106,264,963
1921	63	52,664,331	14,142,174	13,318	92,953,438
1922	65	51,913,956	14,067,567	13,332	84,826,219
1923	75	59,282,801	16,099,333	14,074	101,824,142
1924	66	47,812,253	14,145,036	12,764	76,968,958
1925	65	87,585,678	16,098,858	13,872	119,109,701
1926	65	69,337,890	15,974,822	13,772	102,814,471
1927	68	51,434,428	16,229,352	13,826	84,459,666
1928	66	52,048,921	15,738,360	13,629	83,707,199
1929	67	53,030,427	16,853,664	14,450	93,148,770
1930	65	50,849,268	14,838,020	13,081	75,853,910
<i>Clothing, Men's and Women's, Including Work Clothing</i>					
1919	465	41,573,579	12,823,878	13,127	71,902,620
1920	460	41,457,483	14,343,454	12,129	73,533,991
1921	443	26,471,823	11,219,297	10,444	50,262,173
1922	442	28,925,106	12,763,975	11,519	53,946,067
1923	511	38,703,840	14,981,950	12,727	70,819,700
1924	486	34,899,421	13,405,639	11,549	63,904,828
1925	439	33,158,905	12,023,478	10,665	61,187,773

Table 20. — Comparisons of Principal Data, for the Leading Manufacturing Industries, 1919-1930 — Continued

YEARS	Number of Establishments	Value of Stock and Materials Used	Amount of Wages Paid during the Year	Average Number of Wage-earners Employed	Value of Products
<i>Clothing—Continued</i>					
1926 . . .	483	\$36,284,848	\$14,263,815	12,115	\$68,554,055
1927 . . .	472	37,713,123	15,131,382	13,163	72,296,725
1928 . . .	500	37,087,769	14,354,468	13,310	69,021,128
1929 . . .	501	42,109,667	15,625,826	13,848	79,131,545
1930 . . .	489	35,613,636	14,398,266	13,540	65,951,764
<i>Leather, Tanned, Curried, and Finished</i>					
1919 . . .	131	82,017,255	19,211,156	15,180	129,249,131
1920 . . .	132	57,410,060	17,913,018	12,447	88,344,819
1921 . . .	119	35,801,421	11,389,125	9,038	61,106,452
1922 . . .	122	31,383,055	13,298,797	10,813	57,669,973
1923 . . .	122	40,439,335	15,340,403	11,437	71,098,478
1924 . . .	123	42,867,178	15,023,961	11,010	70,603,298
1925 . . .	118	42,430,939	14,178,183	10,438	70,708,050
1926 . . .	123	40,698,690	14,016,402	10,241	66,600,352
1927 . . .	115	47,860,959	14,587,638	10,768	77,649,457
1928 . . .	124	53,764,692	14,531,789	10,975	82,268,326
1929 . . .	113	60,243,095	14,206,501	10,707	88,348,403
1930 . . .	107	41,890,582	11,645,166	8,953	63,591,977
<i>Rubber Goods, including Tires and Inner Tubes¹</i>					
1919 . . .	47	47,627,882	11,538,080	9,600	86,358,067
1920 . . .	49	42,001,564	11,779,505	8,130	85,778,471
1921 . . .	52	30,349,377	9,005,575	7,847	62,714,484
1922 . . .	61	37,096,491	11,924,464	10,197	75,829,765
1923 . . .	59	48,409,783	14,698,488	11,388	84,098,920
1924 . . .	58	47,010,344	13,393,684	10,406	84,681,207
1925 . . .	52	61,611,753	13,904,175	10,740	108,594,705
1926 . . .	56	71,670,965	13,648,767	10,444	110,305,176
1927 . . .	64	56,715,715	13,298,241	10,364	97,717,724
1928 . . .	68	53,136,600	13,714,866	10,552	89,672,751
1929 . . .	62	44,604,200	12,400,228	9,764	76,439,857
1930 . . .	65	33,032,734	10,459,597	8,658	62,870,682
<i>Meat Packing, Wholesale</i>					
1919 . . .	40	101,235,340	5,391,004	4,307	110,238,038
1920 . . .	32	73,125,278	4,868,116	3,436	89,234,029
1921 . . .	33	41,052,369	3,798,379	2,986	48,810,846
1922 . . .	27	46,193,957	3,490,994	3,153	55,093,617
1923 . . .	33	47,128,857	4,604,972	3,651	56,765,176
1924 . . .	32	46,832,366	4,679,275	3,506	56,799,375
1925 . . .	33	52,620,735	4,121,768	3,292	60,710,531
1926 . . .	28	54,604,670	3,759,969	3,000	63,220,783
1927 . . .	40	51,139,522	4,127,491	3,191	58,796,506
1928 . . .	37	54,604,066	3,855,033	2,988	63,509,485
1929 . . .	33	56,599,409	3,572,432	2,594	64,354,688
1930 . . .	31	51,030,796	3,435,693	2,530	59,425,738
<i>Motor Vehicles, including Motor-Vehicle Bodies and Parts</i>					
1919 . . .	96	16,281,701	5,829,241	4,530	27,031,604
1920 . . .	101	19,075,282	8,126,991	5,611	32,215,131
1921 . . .	91	20,966,565	6,086,305	4,304	35,523,281
1922 . . .	109	25,096,715	7,641,393	5,065	44,700,151
1923 . . .	111	37,838,793	9,317,325	6,219	62,528,614
1924 . . .	114	30,050,237	6,930,989	4,915	47,056,782
1925 . . .	75	32,254,045	9,674,218	6,219	57,659,724
1926 . . .	85	31,670,832	9,222,258	6,673	55,139,103
1927 . . .	58	15,447,268	7,547,989	5,173	27,064,098
1928 . . .	64	21,170,041	7,092,376	4,599	33,858,402
1929 . . .	51	36,535,533	8,653,928	5,904	62,631,786
1930 . . .	55	31,711,652	6,411,950	4,465	47,000,787
<i>Gas, Manufactured, Illuminating and Heating</i>					
1919 . . .	51	10,773,564	3,557,468	2,654	24,231,095
1920 . . .	51	12,169,919	3,718,543	2,427	31,356,276
1921 . . .	47	13,679,896	4,324,527	2,524	33,808,668
1922 . . .	47	13,116,729	4,436,757	2,825	34,034,561
1923 . . .	49	15,150,715	6,342,914	4,146	37,188,227
1924 . . .	48	11,781,221	5,325,159	3,405	34,245,470
1925 . . .	46	13,888,004	6,205,743	4,229	36,659,265
1926 . . .	45	10,086,179	4,489,990	2,789 ³	31,806,393
1927 . . .	41	16,201,703	6,046,546	4,079	38,657,688
1928 . . .	40	13,729,991	5,609,403	3,437 ³	37,469,887
1929 . . .	39	15,835,388	6,516,333	4,096	41,264,782
1930 . . .	37	11,849,481	5,800,474	3,371 ³	40,193,954

Table 20. — Comparisons of Principal Data, for the Leading Manufacturing Industries, 1919-1930 — Continued

YEARS	Number of Establishments	Value of Stock and Materials Used	Amount of Wages Paid during the Year	Average Number of Wage-earners Employed	Value of Products
<i>Confectionery</i>					
1919	130	\$34,874,323	\$7,512,037	10,753	\$60,556,558
1920	152	39,295,866	8,617,406	9,836	61,280,594
1921	146	24,643,965	6,545,314	8,202	42,975,013
1922	144	23,628,231	6,670,030	8,006	41,599,379
1923	149	26,504,012	7,475,548	8,805	48,618,574
1924	141	24,968,335	7,456,716	7,899	45,875,376
1925	134	25,842,869	6,755,486	7,625	49,333,972
1926	147	26,910,860	7,472,929	8,372	50,669,112
1927	148	28,308,227	7,243,925	8,373	49,673,740
1928	153	25,547,674	6,916,799	7,489	46,124,991
1929	144	22,820,300	6,744,576	7,471	43,932,366
1930	144	19,994,216	6,291,556	6,541	37,815,816
<i>Boots and Shoes, Rubber</i>					
1919	8	17,621,139	12,762,706	13,062	44,307,961
1920	8	25,440,570	18,940,608	14,883	65,715,095
1921	8	11,544,473	8,868,857	9,347	36,700,126
1922	8	11,573,669	9,389,154	10,372	40,511,741
1923	10	18,874,520	14,650,810	12,528	56,917,929
1924	10	12,548,599	9,602,813	9,263	34,859,447
1925	10	18,794,523	13,525,474	11,389	53,626,091
1926	9	21,512,000	13,512,873	12,774	53,129,233
1927	10	18,957,487	15,470,897	12,081	56,440,025
1928	10	18,266,621	14,960,384	12,709	54,066,037
1929	10	15,187,789	13,521,613	11,163	40,250,364
1930	7	15,086,820	9,287,026	8,215	36,923,061
<i>Knit Goods</i>					
1919	77	31,172,563	11,364,030	12,751	52,424,235
1920	71	31,871,942	10,728,570	10,625	54,059,574
1921	81	20,251,896	8,969,044	10,497	34,924,807
1922	88	23,801,579	10,467,806	11,663	44,219,560
1923	87	25,923,485	10,605,684	11,652	46,834,545
1924	88	20,450,911	9,443,959	9,863	38,487,391
1925	88	25,902,556	9,715,424	10,551	46,386,519
1926	92	22,362,814	9,512,858	10,088	44,060,059
1927	93	22,315,903	9,339,035	9,660	43,936,724
1928	90	21,070,158	9,162,848	9,092	40,165,755
1929	86	20,401,873	8,945,286	8,817	41,050,135
1930	80	16,981,448	7,878,614	8,133	34,479,056
<i>Furniture</i>					
1919	161	10,658,248	6,637,133	6,342	26,670,120
1920	144	12,882,852	9,747,660	7,520	32,094,031
1921	160	10,941,342	6,922,987	6,251	24,039,399
1922	177	11,536,245	8,412,753	7,306	26,994,042
1923	189	14,616,185	9,965,802	8,097	34,691,239
1924	187	15,021,243	10,160,663	7,863	34,609,438
1925	191	16,050,928	10,172,074	7,834	33,638,635
1926	208	16,040,692	11,504,758	8,440	37,530,228
1927	194	16,682,116	11,027,153	8,077	36,796,137
1928	220	16,675,734	11,110,481	8,224	37,464,410
1929	217	19,029,630	11,926,867	8,598	41,921,577
1930	222	13,256,836	9,585,968	7,357	32,057,862
<i>Cutlery and Edge Tools⁴</i>					
1921	42	2,422,564	2,718,553	2,769	15,447,457
1922	46	2,454,186	2,622,491	2,743	17,304,570
1923	42	3,366,086	3,235,173	2,874	20,732,650
1924	41	3,993,781	3,696,536	3,059	26,548,206
1925	39	5,506,713	4,027,838	3,197	32,309,071
1926	40	5,879,198	4,454,104	3,644	33,770,700
1927	42	5,883,265	4,173,515	3,407	33,705,477
1928	39	5,445,260	4,516,941	3,327	38,603,431
1929	40	3,734,129	3,939,186	3,467	33,663,199
1930	39	4,446,928	3,805,265	3,682	27,147,569
<i>Textile Machinery and Parts</i>					
1919	116	23,477,372	20,712,227	17,413	65,901,370
1920	107	32,288,692	28,412,882	19,686	81,595,711
1921	127	23,199,148	20,836,446	16,479	67,204,551
1922	124	16,955,862	17,279,848	14,846	52,888,931
1923	137	24,518,360	24,318,310	18,668	69,343,009
1924	129	14,986,290	18,352,490	14,666	50,253,757
1925	123	16,584,208	17,769,454	13,687	51,411,150

Table 20. — Comparisons of Principal Data, for the Leading Manufacturing Industries, 1919-1930 — Concluded

YEARS		Number of Estab- lish- ments	Value of Stock and Materials Used	Amount of Wages Paid during the Year	Average Number of Wage-earners Employed	Value of Products
<i>Textile Machinery and Parts—Continued</i>						
1926	.	130	\$15,333,814	\$16,783,043	12,623	\$47,739,905
1927	.	119	15,008,418	16,242,087	12,009	46,865,937
1928	.	119	12,350,981	13,651,765	10,399	39,082,682
1929	.	111	12,467,673	14,233,661	10,597	41,202,970
1930	.	109	8,423,447	10,512,566	8,602	27,033,415
<i>Silk Manufactures</i>						
1919	.	21	19,243,483	5,039,601	5,697	34,193,951
1920	.	22	23,302,010	6,067,423	5,626	33,636,882
1921	.	23	13,162,836	4,467,028	5,864	23,604,010
1922	.	25	15,427,762	5,988,741	6,197	28,097,042
1923	.	24	18,820,913	6,782,643	6,448	33,646,974
1924	.	25	15,033,466	6,176,952	5,682	29,076,154
1925	.	27	21,512,814	6,840,098	6,497	36,608,014
1926	.	28	18,984,539	7,425,459	6,559	33,100,630
1927	.	33	23,218,826	7,615,872	7,357	38,220,144
1928	.	30	16,401,463	7,137,603	6,782	32,022,695
1929 ⁵	.	42	20,959,668	7,105,466	7,390	37,412,704
1930 ⁶	.	41	12,223,525	5,893,804	5,684	24,631,823
<i>Jewelry</i>						
1919	.	165	18,364,602	7,233,590	6,786	34,816,822
1920	.	142	16,403,880	7,092,049	6,012	30,896,678
1921	.	153	9,025,355	5,280,215	4,619	20,171,714
1922	.	149	11,936,802	5,750,838	5,069	23,808,867
1923	.	150	14,915,546	7,107,467	5,677	30,436,712
1924	.	141	12,716,238	6,716,301	5,367	26,108,710
1925	.	140	12,453,539	6,378,158	5,056	26,156,151
1926	.	133	12,894,407	6,774,713	5,382	27,975,070
1927	.	135	12,205,679	6,573,986	5,216	26,781,180
1928	.	119	13,360,741	7,238,630	5,523	28,943,476
1929	.	120	12,614,702	6,836,212	5,422	28,077,253
1930	.	117	9,174,431	5,792,575	4,814	21,976,448
<i>Boxes, Paper</i>						
1919	.	102	7,463,490	3,547,093	4,711	15,666,081
1920	.	110	12,536,056	5,212,843	5,745	24,960,223
1921	.	115	6,971,470	3,942,616	4,527	14,991,098
1922	.	122	8,072,278	4,208,542	4,717	16,444,749
1923	.	123	9,752,403	4,524,230	5,116	19,918,388
1924	.	125	9,415,180	4,823,297	5,121	18,874,060
1925	.	122	10,827,475	4,976,477	5,248	21,556,205
1926	.	117	12,196,443	5,349,518	5,464	23,038,841
1927	.	117	12,504,680	5,135,138	5,300	24,263,922
1928	.	114	12,459,121	5,249,750	5,298	23,591,687
1929	.	110	13,505,759	5,422,332	5,345	25,267,448
1930	.	104	11,357,407	4,621,800	4,731	20,922,191

¹ Exclusive of rubber boots and shoes. (See page 95.)² The census for the years 1919, 1921, 1923, 1925, 1927, and 1929 included certain publishing establishments and small printing offices not canvassed in the other years specified, and data for these years, therefore, are not strictly comparable with corresponding data for the other years specified.³ Does not include street men.⁴ Comparable data for 1919 and 1920 are not available.⁵ Includes rayon manufactures.

Appendix

MONTHLY INDEX OF EMPLOYMENT AND EARNINGS IN PRINCIPAL MANUFACTURING INDUSTRIES IN MASSACHUSETTS, 1925-1931

A. INDEX NUMBERS OF EMPLOYMENT IN MANUFACTURING ESTABLISHMENTS IN MASSACHUSETTS, ALL INDUSTRIES COMBINED AND TWENTY LEADING INDUSTRIES: BY MONTHS, FOR THE YEARS 1925-1931, INCL.

(1932 Revised Series — Employment)

Base: — 100.0 = Average Number of Wage-earners Employed in the Three-Year-Period 1925-1926-1927.
 Sources. — For basic period, and for 1928 and 1929, the Annual Census of Manufactures; for 1930 and 1931, the Monthly Survey of Representative Manufacturing Establishments, made by the Massachusetts Department of Labor and Industries.

MONTHS	YEARS						
	1925	1926	1927	1928	1929	1930	1931
<i>All Industries Combined — 100.0 = 590,616 Wage-earners</i>							
January	100.4	102.6	98.4	93.4	91.9	89.2	71.9
February	102.0	104.0	99.7	94.3	94.4	89.4	73.7
March	102.4	105.6	99.5	94.6	95.5	88.3	74.4
April	101.1	103.3	98.5	91.1	94.7	86.6	74.7
May	98.9	101.8	97.6	88.8	94.7	84.4	73.3
June	96.5	99.0	96.2	87.8	94.0	81.5	71.4
July	95.6	96.4	95.7	86.3	94.0	77.1	69.9
August	97.7	99.1	97.2	89.1	95.4	78.5	71.4
September	99.7	102.2	99.3	92.0	97.0	79.0	70.9
October	102.0	104.7	99.4	95.0	97.0	78.1	65.2
November	103.0	103.7	98.0	95.3	93.5	75.8	62.2
December	102.3	101.1	95.0	93.4	89.9	72.4	61.1
<i>Average</i>	<i>100.1</i>	<i>102.0</i>	<i>97.9</i>	<i>91.6</i>	<i>94.3</i>	<i>81.7</i>	<i>70.0</i>
<i>Cotton Goods — 100.0 = 92,841 Wage-earners</i>							
January	108.1	103.3	98.7	81.6	78.7	67.2	48.6
February	109.3	104.5	100.2	85.7	79.7	68.1	48.9
March	110.2	105.2	101.5	85.2	80.4	66.3	51.9
April	110.1	103.5	101.0	73.2	78.7	65.0	57.1
May	106.3	100.3	100.4	60.7	79.2	61.5	56.0
June	102.4	95.4	99.8	58.3	77.5	52.6	52.6
July	97.1	89.3	98.9	55.3	76.0	48.9	51.3
August	95.5	91.8	96.8	57.2	74.5	48.7	53.2
September	96.0	94.6	96.8	56.6	74.3	48.2	46.6
October	100.9	97.9	96.1	71.6	74.0	50.2	37.9
November	102.2	98.4	93.4	78.3	72.7	50.4	40.2
December	105.0	97.9	91.0	78.9	69.5	49.0	41.7
<i>Average</i>	<i>103.6</i>	<i>98.5</i>	<i>97.9</i>	<i>70.2</i>	<i>76.3</i>	<i>56.7</i>	<i>48.8</i>
<i>Boots and Shoes (only) — 100.0 = 57,710 Wage-earners</i>							
January	98.8	99.3	96.2	91.0	94.7	98.0	78.7
February	105.0	105.7	102.4	99.1	101.6	103.2	86.1
March	108.9	107.9	103.6	102.1	102.6	108.7	90.8
April	102.7	103.4	100.2	95.2	98.0	104.9	88.1
May	95.1	102.6	95.4	91.0	91.0	99.2	78.9
June	85.3	98.2	88.8	87.4	85.3	83.9	71.6
July	94.4	100.8	93.9	92.0	90.5	91.7	79.3
August	104.0	107.2	101.2	101.7	100.1	102.2	85.3
September	105.9	110.9	103.5	105.7	105.5	99.7	84.5
October	104.3	110.7	102.4	104.9	104.0	90.4	74.9
November	96.9	102.2	91.6	95.7	89.2	78.9	53.3
December	92.4	93.5	85.0	87.2	83.2	64.4	56.1
<i>Average</i>	<i>99.5</i>	<i>103.5</i>	<i>97.0</i>	<i>96.1</i>	<i>95.5</i>	<i>93.8</i>	<i>77.3</i>
<i>Woolen and Worsted Goods — 100.0 = 53,526 Wage-earners</i>							
January	109.3	103.2	102.1	87.5	86.0	70.8	57.9
February	110.2	103.3	98.4	85.8	89.0	71.4	67.1
March	103.2	107.1	92.1	85.2	89.1	69.6	69.6
April	101.3	100.6	92.2	80.8	85.7	67.5	67.0
May	95.7	97.4	90.7	82.6	90.9	71.5	71.0
June	93.5	93.1	91.7	81.3	88.9	75.0	73.6
July	93.9	90.8	93.3	76.0	85.9	72.7	79.3
August	99.7	97.0	95.6	80.9	84.9	73.5	81.5
September	100.8	102.1	100.7	84.4	86.6	74.5	77.7
October	103.8	111.2	95.2	89.1	85.9	68.6	48.9
November	112.4	110.6	100.4	92.4	77.1	65.4	48.6
December	106.2	108.3	92.3	88.1	74.0	53.8	49.7
<i>Average</i>	<i>102.5</i>	<i>102.1</i>	<i>95.4</i>	<i>84.5</i>	<i>85.3</i>	<i>69.9</i>	<i>66.0</i>

MONTHS	YEARS						
	1925	1926	1927	1928	1929	1930	1931
<i>Electrical Machinery, Apparatus and Supplies¹ — 100.0=25,908 Wage-earners</i>							
January . . .	93.0	113.4	99.3	91.3	96.9	103.4	81.9
February . . .	91.2	116.0	95.9	90.1	98.2	98.2	80.6
March . . .	92.3	118.1	93.3	88.8	100.2	92.5	81.0
April . . .	93.2	113.6	89.7	87.3	101.7	90.9	79.6
May . . .	93.1	109.8	88.9	88.0	104.6	91.2	76.5
June . . .	92.1	105.4	88.1	91.8	115.2	92.7	75.8
July . . .	93.4	100.8	88.3	93.1	122.2	87.5	73.4
August . . .	94.9	98.8	92.0	96.6	125.5	84.0	71.0
September . . .	97.6	103.0	98.8	101.5	125.5	87.2	73.0
October . . .	103.3	106.8	105.8	106.4	123.7	89.4	71.8
November . . .	107.5	106.1	106.3	107.1	115.3	86.9	69.5
December . . .	109.4	100.4	100.3	105.7	107.0	85.7	64.9
Average . . .	96.8	107.7	95.6	95.7	111.3	90.8	74.9
<i>Foundry and Machine-Shop Products — 100.0=19,953 Wage-earners</i>							
January . . .	96.4	100.6	101.1	96.6	100.6	99.4	83.9
February . . .	97.4	101.4	100.9	96.9	101.9	100.6	81.2
March . . .	98.7	102.3	100.5	97.5	104.3	99.5	81.5
April . . .	98.1	103.1	99.8	97.8	105.7	98.3	81.2
May . . .	98.0	103.5	99.9	98.6	108.0	98.1	79.4
June . . .	98.5	103.0	99.3	99.2	108.4	97.4	77.0
July . . .	97.5	102.6	99.0	99.5	108.9	92.9	72.7
August . . .	96.9	102.0	99.7	98.9	109.4	92.6	69.0
September . . .	97.4	102.5	99.4	99.9	110.0	93.5	71.1
October . . .	97.7	102.8	99.3	101.4	109.0	91.1	69.9
November . . .	98.7	102.0	99.0	101.8	106.9	88.3	68.2
December . . .	100.0	102.2	98.3	101.8	104.4	87.5	66.4
Average . . .	97.9	102.3	99.7	99.2	106.5	94.9	75.1
<i>Printing and Publishing² — 100.0=14,442 Wage-earners</i>							
January . . .	97.8	101.0	101.3	100.3	104.0	106.0	99.5
February . . .	98.3	101.6	100.8	100.7	104.7	104.2	98.3
March . . .	99.1	102.2	101.6	101.4	104.4	103.1	96.3
April . . .	99.9	102.6	101.6	101.5	104.4	103.1	95.9
May . . .	99.6	102.3	100.2	101.7	104.5	102.7	96.8
June . . .	99.3	101.5	99.4	101.2	104.9	101.3	93.8
July . . .	96.8	100.1	96.8	98.9	102.7	99.7	90.7
August . . .	95.9	99.2	95.4	98.5	102.0	99.3	89.8
September . . .	97.8	101.0	97.1	100.7	106.0	100.4	91.3
October . . .	98.5	103.0	100.0	102.4	107.5	100.8	91.7
November . . .	99.4	103.6	99.5	103.2	109.4	100.8	91.8
December . . .	100.0	104.4	101.2	103.8	108.3	100.1	91.8
Average . . .	98.5	101.9	99.6	101.3	105.2	101.8	94.0
<i>Dyeing and Finishing Textiles — 100.0=13,823 Wage-earners</i>							
January . . .	101.1	99.2	97.3	99.2	102.6	99.4	93.8
February . . .	102.0	99.5	99.2	100.4	105.5	99.1	97.1
March . . .	103.3	101.8	101.4	100.6	107.6	98.7	100.2
April . . .	102.7	102.4	102.1	99.1	108.7	99.2	101.2
May . . .	100.9	101.2	101.2	97.4	107.8	97.9	96.4
June . . .	97.8	98.6	99.8	95.4	106.4	96.8	91.8
July . . .	96.8	96.6	98.2	93.3	101.8	81.5	80.4
August . . .	96.3	96.3	98.0	93.8	100.4	87.5	90.9
September . . .	88.8	98.7	100.8	97.4	102.7	92.1	92.5
October . . .	101.9	101.5	102.2	100.6	105.6	92.3	64.8
November . . .	102.2	100.9	101.2	102.0	104.2	95.0	66.4
December . . .	101.0	99.2	98.9	103.2	101.2	95.2	68.4
Average . . .	100.4	99.6	100.0	98.6	104.5	94.6	87.0
<i>Paper and Wood Pulp — 100.0=13,839 Wage-earners</i>							
January . . .	103.3	102.9	99.5	91.1	87.6	90.0	78.5
February . . .	103.9	104.8	99.8	91.3	88.5	89.9	78.9
March . . .	104.7	104.5	98.7	91.3	89.2	89.7	80.0
April . . .	103.5	104.6	97.6	91.2	90.0	86.8	78.7
May . . .	102.0	103.4	97.0	91.0	89.7	87.6	77.8
June . . .	99.1	102.0	94.9	91.0	89.8	86.7	74.7
July . . .	97.7	101.1	94.4	90.4	88.9	79.3	72.3
August . . .	97.6	101.1	94.5	91.3	89.3	81.3	71.3
September . . .	97.5	102.8	94.4	90.7	89.3	80.9	73.4
October . . .	98.8	102.7	94.6	91.3	90.1	82.4	73.6
November . . .	99.8	102.9	96.0	90.5	89.6	79.4	72.9
December . . .	100.3	102.5	95.5	91.9	89.8	79.7	73.5
Average . . .	100.7	102.9	96.4	91.1	89.3	84.5	75.5

MONTHS	YEARS						
	1925	1926	1927	1928	1929	1930	1931
<i>Textile Machinery and Parts — 100.0=12,773 Wage-earners</i>							
January . . .	112.2	105.4	88.7	91.0	81.3	79.7	57.1
February . . .	114.0	106.4	92.8	97.8	82.6	80.9	58.5
March . . .	111.7	107.7	95.0	86.7	84.7	76.2	57.2
April . . .	110.2	105.5	94.8	81.7	84.3	74.0	54.8
May . . .	109.6	101.9	94.7	80.4	83.4	65.2	55.3
June . . .	106.4	96.3	94.8	79.6	83.5	61.7	54.9
July . . .	104.9	91.2	92.9	75.8	83.3	58.1	56.7
August . . .	102.9	93.1	96.1	77.8	83.1	55.7	56.6
September . . .	102.8	93.1	95.6	73.4	83.0	55.7	56.5
October . . .	102.9	94.1	95.0	78.3	82.4	55.0	57.0
November . . .	103.1	95.5	93.8	79.8	82.4	57.1	56.3
December . . .	105.4	95.5	94.0	81.5	81.5	60.0	57.7
Average . . .	107.2	98.8	94.0	81.4	83.0	64.9	56.6

<i>Rubber Footwear — 100.0=12,081 Wage-earners</i>							
January . . .	91.6	112.0	103.1	110.5	89.5	94.1	77.9
February . . .	96.3	111.4	96.4	106.4	88.7	90.9	71.9
March . . .	96.8	112.0	94.0	102.0	88.8	86.4	33.1
April . . .	94.7	111.7	97.7	102.8	86.9	82.0	55.0
May . . .	90.9	107.2	100.6	102.1	86.2	79.5	60.0
June . . .	90.7	104.3	101.6	102.1	90.1	75.9	66.0
July . . .	87.4	98.6	96.4	100.2	92.8	75.0	65.7
August . . .	83.3	99.0	94.0	102.3	97.1	75.0	67.4
September . . .	93.2	101.0	97.1	105.2	99.5	76.7	67.8
October . . .	96.6	102.6	102.8	111.7	99.0	77.5	67.0
November . . .	104.0	103.2	107.8	111.4	94.6	78.2	67.4
December . . .	105.8	105.8	108.6	105.7	95.5	80.6	60.3
Average . . .	94.3	105.7	100.0	105.2	92.4	81.0	63.8

<i>Rubber Goods, Tires, and Inner Tubes — 100.0=10,516 Wage-earners</i>							
January . . .	102.5	107.5	97.7	95.6	93.7	83.4	57.9
February . . .	102.6	106.4	95.4	98.5	96.8	80.9	58.1
March . . .	103.9	107.3	97.7	99.4	97.3	80.0	57.2
April . . .	102.1	104.2	98.0	98.5	97.9	79.7	55.6
May . . .	102.3	98.3	99.5	99.2	97.2	77.6	56.8
June . . .	100.6	93.1	99.8	100.5	94.8	75.7	55.3
July . . .	100.5	92.4	99.3	100.9	94.1	67.9	54.3
August . . .	100.0	91.1	97.5	102.5	93.9	63.2	52.1
September . . .	101.6	93.0	99.7	103.8	89.4	64.4	52.5
October . . .	102.6	99.4	99.0	104.7	90.3	62.1	49.5
November . . .	103.7	101.4	100.5	102.1	87.6	61.4	49.3
December . . .	103.0	97.8	98.6	97.7	81.4	60.2	47.5
Average . . .	102.1	99.3	98.6	100.3	92.9	71.4	53.8

<i>Leather — Tanned, Curried and Finished — 100.0=10,482 Wage-earners</i>							
January . . .	104.5	96.9	105.3	108.0	97.3	100.7	84.7
February . . .	106.9	99.5	107.5	112.5	101.3	99.7	87.2
March . . .	108.3	100.2	103.9	110.3	99.9	94.6	89.4
April . . .	101.0	96.3	99.1	105.6	96.3	91.9	87.4
May . . .	97.7	92.3	95.0	104.2	96.4	90.8	88.8
June . . .	94.5	88.4	95.6	97.2	97.4	90.0	88.2
July . . .	92.8	89.8	97.9	100.8	104.7	90.7	89.1
August . . .	96.2	96.4	102.0	106.4	108.3	93.2	90.7
September . . .	98.7	103.3	104.8	107.4	110.6	93.4	84.7
October . . .	100.9	105.1	108.0	106.8	109.9	91.3	78.1
November . . .	97.5	102.6	105.2	99.0	104.1	86.6	73.1
December . . .	96.1	101.6	108.5	97.1	99.6	81.9	68.2
Average . . .	99.6	97.7	102.7	104.7	102.2	92.1	84.1

<i>Hosiery and Knit Goods — 100.0=10,100 Wage-earners</i>							
January . . .	103.8	102.5	97.3	95.0	81.4	90.2	65.4
February . . .	104.8	99.1	100.9	96.7	83.2	92.8	72.6
March . . .	106.3	99.4	95.0	97.0	86.0	78.3	73.8
April . . .	103.4	95.9	94.6	96.3	85.7	85.9	74.8
May . . .	106.8	98.3	96.0	94.4	86.4	84.4	77.0
June . . .	99.0	93.2	93.1	93.1	86.8	85.8	77.1
July . . .	99.8	90.7	92.2	83.8	83.8	82.1	70.2
August . . .	101.3	97.4	91.3	81.9	85.8	79.7	78.2
September . . .	103.9	101.5	93.7	83.6	90.5	85.8	85.0
October . . .	108.6	105.9	98.2	86.2	94.7	86.5	83.8
November . . .	108.9	108.1	99.3	87.6	93.0	82.8	81.6
December . . .	106.9	106.4	96.1	84.3	90.3	70.1	76.2
Average . . .	104.5	99.9	95.6	90.0	87.3	83.7	76.3

MONTHS	YEARS						
	1925	1926	1927	1928	1929	1930	1931
<i>Clothing, Men's¹ — 100.0 = 9,543 Wage-earners</i>							
January . . .	86.4	97.3	97.6	102.9	92.9	90.6	77.3
February . . .	92.1	99.9	103.9	106.9	97.9	97.9	84.0
March . . .	94.6	105.8	106.3	104.4	101.0	95.9	85.9
April . . .	93.5	103.6	105.1	101.2	100.2	95.1	85.8
May . . .	91.6	104.8	103.8	94.9	99.7	82.3	71.0
June . . .	91.0	102.3	102.8	91.9	99.2	91.3	80.6
July . . .	92.1	100.1	102.7	90.5	93.8	93.2	79.9
August . . .	92.3	97.2	102.0	101.1	98.0	92.1	81.9
September . . .	96.6	106.2	106.9	108.0	104.4	95.3	90.0
October . . .	96.1	105.5	108.3	113.3	106.6	95.5	91.5
November . . .	99.4	107.7	107.0	108.9	106.3	79.0	65.1
December . . .	93.8	102.8	101.3	103.2	99.7	65.9	44.6
<i>Average . . .</i>	<i>93.3</i>	<i>102.8</i>	<i>104.0</i>	<i>102.2</i>	<i>100.0</i>	<i>89.5</i>	<i>78.1</i>

<i>Bread and Other Bakery Products — 100.0 = 8,533 Wage-earners</i>							
January . . .	97.4	100.1	95.6	98.7	119.7	119.5	113.4
February . . .	98.2	99.8	96.7	99.4	122.4	119.7	113.8
March . . .	97.4	99.8	96.6	100.7	121.5	120.2	111.7
April . . .	97.4	100.2	97.5	100.5	119.2	117.1	111.9
May . . .	98.6	101.4	97.3	102.0	121.1	120.7	110.4
June . . .	100.3	102.5	101.0	103.1	123.9	121.9	112.6
July . . .	100.4	103.8	102.0	104.3	123.9	122.3	116.4
August . . .	99.1	102.7	99.8	103.1	123.2	117.4	112.3
September . . .	98.4	102.9	99.7	105.0	121.8	118.9	111.6
October . . .	100.6	103.4	102.6	105.5	122.6	118.0	107.2
November . . .	99.8	103.5	102.8	106.6	123.1	120.1	107.4
December . . .	98.0	103.1	100.1	104.9	121.8	116.0	109.3
<i>Average . . .</i>	<i>98.8</i>	<i>101.9</i>	<i>99.3</i>	<i>102.8</i>	<i>122.0</i>	<i>119.3</i>	<i>111.5</i>

<i>Confectionery — 100.0 = 8,123 Wage-earners</i>							
January . . .	90.0	98.9	95.1	90.5	87.7	88.4	92.8
February . . .	87.5	96.5	97.5	87.3	89.6	85.7	90.2
March . . .	89.3	96.2	95.4	85.4	85.0	36.6	85.8
April . . .	80.7	89.8	91.0	82.7	82.7	83.5	82.3
May . . .	82.0	88.6	90.6	81.2	81.5	81.8	78.7
June . . .	83.7	89.4	94.2	82.9	81.4	77.7	80.4
July . . .	61.9	82.4	89.2	81.1	83.2	83.6	54.2
August . . .	95.9	105.0	109.1	89.9	92.9	86.2	76.7
September . . .	107.5	119.1	120.0	103.6	104.8	96.8	96.6
October . . .	116.1	129.2	123.6	112.4	114.0	107.6	119.5
November . . .	119.6	127.7	120.9	109.2	106.1	106.3	121.3
December . . .	112.1	114.0	110.3	97.8	94.7	97.5	104.6
<i>Average . . .</i>	<i>93.9</i>	<i>103.1</i>	<i>103.1</i>	<i>92.2</i>	<i>92.0</i>	<i>90.1</i>	<i>90.3</i>

<i>Furniture — 100.0 = 8,117 Wage-earners</i>							
January . . .	97.1	106.1	98.2	99.4	104.6	97.3	72.3
February . . .	96.5	105.9	100.3	100.2	106.1	92.3	74.6
March . . .	98.1	106.3	101.8	103.0	108.1	93.1	73.8
April . . .	96.2	104.0	99.5	101.6	106.8	91.3	71.9
May . . .	93.7	102.2	97.8	99.7	105.2	89.7	69.6
June . . .	92.7	100.2	97.5	97.8	105.6	86.7	66.9
July . . .	89.0	95.9	95.1	95.9	102.6	81.5	65.3
August . . .	91.8	100.1	95.9	99.2	101.1	81.2	67.0
September . . .	95.7	103.7	99.9	102.3	106.8	86.0	72.8
October . . .	99.4	106.8	102.4	104.3	109.6	88.7	73.6
November . . .	103.7	109.4	104.4	106.2	109.2	86.8	69.4
December . . .	104.2	105.3	101.3	105.4	105.5	81.4	66.3
<i>Average . . .</i>	<i>96.5</i>	<i>104.0</i>	<i>99.5</i>	<i>101.3</i>	<i>105.9</i>	<i>88.0</i>	<i>70.1</i>

<i>Boot and Shoe Cut Stock and Findings — 100.0 = 7,520 Wage-earners</i>							
January . . .	92.6	102.4	100.5	102.4	96.3	104.8	76.6
February . . .	97.0	106.9	107.2	109.1	101.3	108.4	88.1
March . . .	98.0	106.8	107.6	111.4	100.6	105.8	88.7
April . . .	91.7	99.3	102.9	104.0	99.2	96.9	86.4
May . . .	86.2	96.5	97.5	97.9	95.9	89.4	86.7
June . . .	79.4	93.8	95.6	94.1	95.1	86.5	79.2
July . . .	88.1	100.1	100.7	94.9	100.0	92.4	86.8
August . . .	97.6	108.1	107.9	105.6	111.2	96.8	92.4
September . . .	100.1	111.4	112.0	105.6	115.5	94.5	89.5
October . . .	98.1	111.7	109.0	103.7	111.0	90.9	73.2
November . . .	94.7	105.3	101.7	93.1	100.1	78.9	62.4
December . . .	91.4	103.5	96.1	91.0	95.9	73.9	71.0
<i>Average . . .</i>	<i>92.9</i>	<i>103.8</i>	<i>103.2</i>	<i>101.3</i>	<i>101.8</i>	<i>93.3</i>	<i>82.2</i>

MONTHS	YEARS						
	1925	1926	1927	1928	1929	1930	1931
<i>Silk and Rayon Manufactures — 100.0 = 6,804 Wage-earners</i>							
January . . .	92.4	98.8	110.7	102.2	109.3	123.8	97.0
February . . .	93.8	95.5	111.8	102.8	111.7	125.2	104.6
March . . .	94.5	92.1	110.8	102.0	112.8	119.7	106.1
April . . .	94.1	92.3	112.0	100.3	111.6	119.4	91.4
May . . .	94.7	95.5	111.1	95.8	109.9	110.0	78.3
June . . .	94.4	95.1	111.3	99.2	107.8	105.8	69.6
July . . .	90.6	85.8	108.4	95.0	105.2	94.1	59.2
August . . .	96.1	99.4	106.0	99.6	105.1	80.2	62.1
September . . .	97.4	101.2	104.1	100.1	105.4	76.7	65.3
October . . .	99.4	99.2	104.5	100.3	108.0	78.3	68.9
November . . .	99.3	100.7	103.8	100.0	108.0	92.8	70.7
December . . .	99.4	101.5	103.3	98.9	108.5	97.6	73.9
Average . . .	95.5	96.4	108.1	99.7	108.6	102.0	78.9
<i>Clothing, Women's⁴ — 100.0 = 6,225 Wage-earners</i>							
January . . .	87.9	94.3	103.1	105.8	109.1	116.7	110.4
February . . .	91.8	100.6	110.3	110.6	116.7	119.5	118.4
March . . .	93.5	103.1	114.6	115.7	121.9	123.7	123.5
April . . .	92.9	102.2	114.0	116.1	127.2	127.7	120.5
May . . .	90.3	100.9	112.4	115.6	128.4	124.7	120.4
June . . .	85.1	98.3	106.7	111.5	121.8	121.3	115.3
July . . .	78.7	90.7	99.4	107.2	109.2	102.9	88.2
August . . .	81.8	95.1	104.5	113.4	115.8	115.4	101.9
September . . .	87.5	104.9	119.4	123.9	126.3	118.2	112.0
October . . .	89.4	110.1	123.9	127.5	133.2	121.5	113.1
November . . .	89.9	104.0	121.1	122.7	130.8	117.4	101.6
December . . .	88.0	97.4	113.6	113.4	121.2	119.1	96.5
Average . . .	88.1	100.1	111.9	115.0	121.8	119.0	110.2

¹ Includes the manufacture of radios and supplies.

² Includes both book and job, and newspaper publishing.

³ Includes the manufacture of men's, youths' and boys' clothing; furnishing goods; shirts; and suspenders, garters, and other elastic woven goods made from purchased webbing.

⁴ Includes the manufacture of corsets and allied garments.

**B. INDEX NUMBERS OF AVERAGE WEEKLY EARNINGS IN MANUFACTURING
ESTABLISHMENTS IN MASSACHUSETTS, ALL INDUSTRIES COMBINED
AND TWENTY LEADING INDUSTRIES: BY MONTHS, FOR THE YEARS
1925-1931, INCL.**

(1932 Revised Series — Average Weekly Earnings)

Base. — 100.0 = Average Weekly Earnings of Wage-earners Employed in the Three-Year-Period 1925-1926-1927.

Source. — Monthly Survey of Representative Manufacturing Establishments, made by the Massachusetts Department of Labor and Industries.

MONTHS	YEARS						
	1925	1926	1927	1928	1929	1930	1931
<i>All Industries Combined — 100.0 = \$24.32</i>							
January	100.4	100.4	98.7	100.3	101.3	99.6	91.2
February	100.2	100.6	100.9	101.2	103.9	99.4	92.6
March	100.1	101.6	101.3	101.6	104.8	100.1	93.4
April	97.8	99.5	101.6	99.3	104.3	99.1	91.7
May	98.3	99.3	101.6	100.4	104.2	98.4	90.5
June	96.9	98.6	100.4	100.9	103.8	96.7	88.4
July	99.3	98.5	99.1	101.1	103.6	95.5	89.1
August	99.6	99.8	102.3	101.0	105.0	96.0	89.2
September	99.2	99.9	102.6	103.4	105.1	96.2	86.7
October	101.0	99.4	100.1	103.1	103.8	92.3	82.9
November	99.9	100.3	100.1	101.0	99.9	90.9	82.0
December	99.9	100.1	100.4	103.2	99.9	92.3	81.8
<i>Average</i>	<i>99.4</i>	<i>99.8</i>	<i>100.8</i>	<i>101.4</i>	<i>103.3</i>	<i>96.4</i>	<i>88.3</i>
<i>Cotton Goods — 100.0 = \$19.26</i>							
January	104.6	99.5	100.1	99.4	99.6	96.4	94.4
February	103.1	101.1	101.0	95.2	102.5	98.5	92.2
March	101.3	101.1	104.3	96.1	103.3	97.6	95.6
April	99.7	99.6	104.4	95.9	102.2	96.9	94.0
May	99.5	98.5	104.1	94.7	101.2	94.9	92.5
June	96.6	97.0	102.9	93.6	100.2	92.6	89.1
July	98.3	91.6	100.6	94.9	99.0	90.0	87.8
August	97.2	94.3	103.0	94.4	98.3	89.7	88.2
September	93.9	96.5	103.4	95.7	98.4	93.1	84.8
October	97.8	98.4	102.7	101.1	99.8	92.6	74.9
November	97.4	101.0	102.5	101.4	97.6	93.5	74.4
December	99.0	102.1	101.7	102.3	95.6	93.4	75.1
<i>Average</i>	<i>99.0</i>	<i>98.4</i>	<i>102.6</i>	<i>97.1</i>	<i>99.8</i>	<i>94.1</i>	<i>86.9</i>
<i>Boots and Shoes (only) — 100.0 = \$22.59</i>							
January	97.6	96.7	93.8	96.2	95.5	88.3	78.8
February	103.0	101.1	104.1	108.3	103.1	91.9	89.3
March	102.7	108.2	104.9	109.7	104.9	94.1	91.0
April	94.0	95.3	101.0	93.9	97.3	95.0	85.6
May	91.7	97.0	100.1	87.2	97.8	87.0	82.1
June	91.6	100.1	94.9	90.4	96.2	81.7	74.2
July	102.9	104.4	104.9	101.1	102.0	89.9	79.2
August	110.2	111.8	112.4	108.0	110.4	97.9	85.6
September	103.2	108.0	110.7	109.3	110.0	93.9	79.0
October	104.6	102.1	98.4	103.3	100.2	80.3	65.0
November	96.0	96.6	93.0	86.0	82.9	64.3	58.9
December	90.7	89.5	82.9	88.3	81.0	70.7	60.1
<i>Average</i>	<i>99.0</i>	<i>100.9</i>	<i>100.1</i>	<i>98.5</i>	<i>98.4</i>	<i>86.3</i>	<i>77.4</i>
<i>Woolen and Worsted Goods — 100.0 = \$21.80</i>							
January	107.6	102.5	99.0	97.6	101.7	98.1	96.7
February	106.2	98.8	99.9	95.1	102.3	93.9	102.5
March	104.9	97.7	96.9	93.1	103.4	92.7	101.1
April	101.7	93.5	99.2	93.6	104.5	92.3	100.5
May	97.1	94.6	100.4	97.7	105.5	99.7	101.5
June	94.7	96.4	100.9	98.6	104.8	98.6	98.6
July	98.6	96.2	99.4	98.0	102.5	96.1	99.3
August	96.8	96.5	101.6	95.6	104.1	97.6	101.3
September	98.9	99.6	102.7	100.6	106.0	98.5	93.8
October	99.9	105.0	102.0	106.3	105.3	91.1	88.1
November	102.3	103.0	99.9	103.2	101.3	91.2	91.0
December	102.4	102.9	100.5	105.8	98.7	93.3	90.2
<i>Average</i>	<i>100.9</i>	<i>98.9</i>	<i>100.2</i>	<i>98.8</i>	<i>103.3</i>	<i>95.3</i>	<i>97.1</i>
<i>Electrical Machinery Apparatus, and Supplies¹ — 100.0 = \$29.15</i>							
January	93.6	102.1	97.7	101.4	106.8	100.7	82.4
February	93.4	101.9	98.0	102.6	107.0	98.7	79.5
March	97.5	102.4	97.5	105.3	108.9	103.8	79.7
April	96.1	100.6	100.4	104.2	110.5	103.9	73.6

MONTHS	YEARS						
	1925	1926	1927	1928	1929	1930	1931
<i>Electrical Machinery Apparatus, and Supplies — Continued</i>							
May	98.5	101.8	101.5	104.1	112.9	102.8	74.2
June	99.7	101.5	101.7	103.6	112.3	97.1	75.6
July	99.7	98.8	99.7	103.8	112.6	94.5	77.1
August	99.0	99.2	101.6	100.5	112.5	90.7	75.4
September	100.9	99.0	101.9	101.2	107.4	86.9	74.8
October	97.8	101.0	102.7	104.4	108.0	81.5	75.3
November	99.0	102.0	107.0	104.9	97.7	81.3	73.5
December	100.8	102.5	101.4	109.5	104.3	84.3	77.4
Average	98.0	101.1	100.9	103.8	108.4	93.9	76.5
<i>Foundry and Machine-shop Products — 100.0 = \$29.57</i>							
January	98.2	104.7	94.7	94.3	98.9	100.9	86.0
February	97.5	104.8	94.6	97.4	101.1	99.6	82.9
March	98.4	104.2	93.8	95.6	100.8	99.9	84.3
April	100.5	104.3	95.4	96.2	102.1	98.4	84.6
May	101.2	105.0	95.7	97.5	99.1	99.7	83.0
June	99.8	104.1	97.6	99.5	102.9	97.9	81.9
July	101.8	105.2	96.5	97.6	101.5	97.1	79.7
August	101.8	103.6	97.4	96.4	100.4	92.5	79.3
September	101.7	103.4	97.3	96.8	102.6	89.7	74.6
October	103.5	101.1	96.3	98.2	100.7	85.1	72.3
November	105.4	97.4	93.8	97.5	100.8	86.5	72.8
December	106.3	96.4	96.2	101.1	101.1	87.5	71.8
Average	101.3	102.9	95.8	97.3	101.0	94.6	79.4
<i>Printing and Publishing² — 100.0 = \$34.32</i>							
January	96.9	99.5	102.3	102.7	102.5	102.1	100.4
February	97.3	100.1	101.6	103.4	103.1	102.0	101.0
March	97.6	99.7	100.7	102.7	104.0	104.3	104.0
April	97.2	102.4	102.6	104.4	101.9	103.6	102.4
May	99.3	102.9	103.1	103.7	107.1	103.8	100.4
June	96.4	98.6	104.0	103.6	104.5	104.8	99.3
July	96.0	97.8	101.3	100.7	103.8	101.7	102.3
August	95.5	100.1	101.8	100.9	102.2	105.3	102.4
September	96.6	100.2	104.0	104.7	104.7	103.1	98.2
October	97.8	96.2	102.8	101.9	102.5	99.4	94.1
November	98.9	100.0	102.5	100.2	102.7	98.2	95.1
December	99.5	102.5	104.4	105.6	103.8	101.3	97.3
Average	97.4	100.0	102.6	102.9	103.6	102.5	99.7
<i>Dyeing and Finishing Textiles — 100.0 = \$23.25</i>							
January	102.1	100.7	100.8	92.4	106.0	95.3	95.6
February	100.3	101.1	102.2	99.5	109.9	98.9	109.6
March	103.1	104.1	106.9	102.1	109.8	99.0	108.0
April	99.7	98.0	104.9	101.0	107.8	100.9	108.2
May	96.9	97.4	101.5	102.9	102.1	98.0	94.9
June	95.1	97.4	101.0	98.0	99.0	93.5	90.9
July	89.9	93.2	92.1	94.5	96.2	87.4	94.9
August	91.3	97.5	98.6	96.9	100.1	88.1	96.7
September	99.7	97.2	106.9	102.3	100.9	98.9	98.0
October	107.6	102.5	103.2	106.0	103.6	98.3	84.7
November	104.5	100.0	101.4	106.4	95.5	101.5	91.2
December	103.9	98.7	101.1	105.5	94.8	101.9	81.0
Average	99.5	99.0	101.7	100.6	102.1	96.8	96.1
<i>Paper and Wood Pulp — 100.0 = \$26.37</i>							
January	99.6	99.9	99.0	102.5	103.0	101.8	87.1
February	100.2	101.7	100.2	103.5	104.1	103.1	87.7
March	99.1	101.6	99.4	102.7	103.6	103.5	87.8
April	97.5	101.2	100.1	101.8	105.5	101.5	86.6
May	95.3	100.0	98.8	102.5	103.5	100.2	86.1
June	97.4	101.1	99.9	100.8	103.7	98.5	83.6
July	98.4	102.1	98.8	103.3	104.3	95.2	81.6
August	98.7	103.0	100.7	100.4	101.0	95.1	80.5
September	100.3	100.7	97.7	101.6	103.8	94.5	77.1
October	99.2	101.2	102.3	103.0	104.0	90.5	76.8
November	99.4	101.8	99.8	105.5	105.4	88.6	75.6
December	102.4	100.4	102.0	105.9	102.1	87.6	73.5
Average	99.0	101.2	99.9	102.8	103.7	96.7	82.0
<i>Textile Machinery and Parts — 100.0 = \$27.17</i>							
January	101.7	107.8	91.7	90.2	103.1	100.5	91.3
February	98.8	103.6	99.7	94.5	106.4	96.5	87.0
March	100.1	106.3	101.3	98.3	105.1	95.3	88.5
April	97.2	107.3	99.0	90.5	108.7	93.3	87.6
May	104.9	99.4	100.6	100.5	104.9	91.1	93.2
June	105.8	91.9	98.5	94.3	104.3	94.2	90.3
July	109.1	90.7	98.7	94.5	106.5	88.9	89.7

MONTHS	YEARS						
	1925	1926	1927	1928	1929	1930	1931
<i>Textile Machinery and Parts—Continued</i>							
August	110.0	89.4	99.8	90.7	104.3	88.1	90.7
September	107.7	93.9	102.7	86.2	102.1	84.6	78.9
October	101.1	93.4	96.4	89.1	105.6	82.4	76.7
November	106.1	95.1	94.0	94.2	105.1	88.5	71.0
December	106.1	96.4	94.1	104.6	103.0	89.0	79.7
Average	104.1	97.9	98.0	94.0	104.9	91.0	85.4
<i>Rubber Footwear—100.0=\$25.34</i>							
January	98.2	99.9	102.9	101.8	93.0	101.4	77.5
February	97.6	93.2	98.5	99.3	94.2	97.3	76.3
March	96.7	98.9	98.7	100.8	95.7	95.0	61.4
April	97.9	102.1	100.9	100.1	100.0	98.7	82.2
May	103.0	101.0	105.7	99.0	99.6	98.7	86.7
June	102.8	89.6	101.0	101.1	101.6	100.9	91.7
July	101.4	93.1	101.6	98.0	98.9	96.1	86.4
August	98.6	89.5	101.2	92.5	98.0	95.1	82.4
September	97.9	98.9	103.4	99.6	104.0	95.7	87.2
October	104.3	99.8	102.4	97.5	101.6	95.3	88.3
November	102.4	96.5	104.9	99.4	103.1	90.8	81.1
December	103.1	107.4	104.8	103.9	101.6	95.0	75.4
Average	100.3	97.5	102.2	99.4	99.3	96.7	81.4
<i>Rubber Goods, Tires and Inner Tubes—100.0=\$26.73</i>							
January	102.6	98.4	95.1	102.3	100.5	95.8	90.4
February	97.7	102.8	101.6	103.6	104.7	94.5	82.7
March	97.6	95.3	98.6	102.6	104.7	96.8	81.3
April	98.1	91.9	99.7	97.0	102.1	95.4	80.9
May	102.0	91.4	103.2	100.5	102.1	97.1	83.8
June	100.0	95.1	99.6	100.8	97.8	85.6	86.1
July	101.7	96.5	98.7	91.5	97.3	81.3	87.8
August	100.8	95.0	102.9	97.0	95.1	82.9	88.8
September	103.2	102.5	103.0	102.7	96.6	86.0	86.3
October	102.1	102.0	105.2	101.1	89.8	94.9	85.8
November	101.7	103.1	104.2	99.2	87.0	94.7	84.2
December	103.5	102.3	101.1	98.2	91.8	87.4	82.9
Average	100.9	98.0	101.1	99.7	97.5	91.0	85.1
<i>Leather—Tanned, Curried and Finished—100.0=\$26.42</i>							
January	100.2	98.3	106.9	103.1	98.0	99.1	90.6
February	101.2	97.9	100.8	103.6	105.4	97.9	92.3
March	101.0	99.0	102.7	103.7	102.4	94.6	93.2
April	95.8	99.6	99.1	99.1	103.2	94.9	93.3
May	97.2	100.0	97.4	99.3	104.9	99.1	93.4
June	94.3	100.2	98.9	100.0	105.5	98.8	92.0
July	96.4	101.3	98.6	102.7	105.8	100.1	92.3
August	97.9	103.7	102.1	101.8	107.2	102.1	91.2
September	94.9	105.6	102.4	103.2	108.5	99.0	90.1
October	96.8	103.8	97.0	103.2	106.0	94.3	87.0
November	97.5	103.9	102.7	96.9	102.5	92.1	87.3
December	97.2	102.3	105.3	99.3	99.4	94.0	85.1
Average	97.5	101.3	101.2	101.3	104.1	97.2	90.7
<i>Hosiery and Knit Goods—100.0=\$19.40</i>							
January	103.5	97.7	98.4	100.2	107.8	108.5	95.1
February	103.2	101.0	99.1	102.4	113.8	109.0	98.7
March	105.6	100.1	100.7	105.6	116.9	102.5	102.8
April	98.6	99.4	98.9	106.2	108.8	100.4	106.9
May	93.1	95.6	100.7	98.1	112.8	105.3	101.5
June	94.9	98.7	101.2	100.4	114.7	107.8	98.5
July	91.2	93.1	94.3	89.5	103.8	108.5	95.8
August	97.1	98.6	103.6	110.6	117.0	103.7	99.9
September	99.9	102.6	105.3	116.1	117.2	106.1	101.7
October	96.9	99.4	109.4	118.5	120.1	112.8	88.0
November	97.8	103.1	110.2	117.0	117.8	109.0	98.0
December	99.3	102.6	105.3	115.1	112.6	98.2	91.8
Average	98.4	99.3	102.3	106.6	113.6	106.0	98.2
<i>Clothing, Men's—100.0=\$20.95</i>							
January	97.3	100.6	98.9	96.4	96.5	93.2	74.1
February	97.3	98.0	102.4	99.0	95.0	96.6	87.6
March	104.1	103.6	103.2	94.6	100.2	99.6	84.7
April	93.1	97.4	100.6	87.1	89.8	87.9	73.0
May	97.9	97.8	98.5	89.7	90.2	80.5	73.4
June	92.9	97.7	97.6	101.8	88.9	91.0	69.0
July	96.6	99.3	97.9	100.9	98.7	91.1	82.4
August	103.5	106.2	106.3	97.8	100.7	94.5	86.2
September	102.9	102.4	105.1	99.6	98.6	88.6	87.1
October	101.7	106.3	99.4	101.8	94.1	80.0	76.4

MONTHS	YEARS						
	1925	1926	1927	1928	1929	1930	1931
<i>Clothing, Men's—Continued</i>							
November	101.5	105.6	92.5	91.4	99.3	82.0	76.8
December	97.9	98.1	97.9	93.0	89.7	72.0	74.0
Average	98.9	101.1	100.0	96.1	95.1	88.1	78.7
<i>Bread and Other Bakery Products—100.0=\$23.85</i>							
January	95.9	100.5	103.8	99.9	97.7	99.5	100.8
February	97.3	100.3	102.3	98.4	96.9	99.3	99.8
March	102.0	99.1	101.5	98.3	95.7	96.6	97.9
April	97.2	101.8	103.1	99.7	100.3	97.7	99.5
May	98.6	101.3	101.5	99.7	101.2	98.1	98.8
June	98.1	102.6	98.2	97.2	96.6	97.5	99.8
July	95.4	100.8	98.7	99.9	97.6	97.2	98.2
August	94.1	102.3	100.3	99.2	98.4	100.1	96.9
September	97.9	101.3	100.1	99.0	98.6	99.6	97.7
October	99.3	102.8	100.4	97.4	98.4	100.4	99.0
November	96.0	102.8	98.6	96.8	98.4	97.5	96.2
December	100.7	103.1	99.7	97.2	99.5	97.6	91.8
Average	97.7	101.6	100.7	98.6	96.3	98.4	98.0
<i>Confectionery—100.0=\$18.76</i>							
January	98.8	98.9	104.2	103.3	100.9	98.1	92.1
February	99.2	98.5	103.5	103.1	97.5	90.9	84.6
March	98.1	101.1	100.3	104.9	97.0	96.3	88.2
April	87.7	99.2	101.9	102.1	95.0	98.6	86.5
May	98.5	103.0	106.6	101.1	98.1	98.6	87.3
June	96.9	96.7	109.4	103.1	99.7	103.0	86.3
July	97.1	93.5	101.1	99.1	93.4	90.7	82.2
August	97.1	100.8	104.2	98.8	102.4	101.0	90.1
September	98.6	101.6	106.1	103.8	100.5	100.4	93.7
October	100.5	100.1	99.3	99.3	98.6	99.4	87.4
November	96.4	100.9	98.5	100.2	99.7	103.8	84.3
December	102.2	100.4	98.6	98.5	101.3	93.7	87.1
Average	97.6	99.6	102.8	101.4	98.7	97.9	87.5
<i>Furniture—100.0=\$26.24</i>							
January	96.9	96.2	101.7	102.3	99.4	102.6	89.6
February	99.0	97.7	104.2	104.4	105.4	100.8	92.9
March	98.4	97.2	104.0	104.7	105.3	102.0	95.8
April	95.2	99.8	104.2	104.0	102.0	98.1	84.7
May	94.2	96.0	103.3	99.3	104.3	100.7	85.1
June	92.8	94.3	99.0	102.7	102.7	95.7	82.5
July	95.5	96.1	97.9	99.2	98.2	99.0	82.0
August	96.7	99.7	103.3	103.8	102.9	98.5	85.9
September	97.5	105.6	104.4	103.2	108.4	105.1	89.5
October	100.5	105.2	101.5	102.8	108.3	100.2	86.3
November	99.4	104.9	106.2	104.1	102.7	95.8	78.1
December	102.4	104.0	105.0	107.2	102.5	88.8	80.9
Average	97.4	99.7	102.9	103.1	103.5	98.9	86.1
<i>Boot and Shoe Cut Stock and Findings—100.0=\$21.28</i>							
January	102.8	97.4	100.7	103.5	103.7	98.0	94.0
February	102.0	97.6	101.3	104.1	102.6	95.8	98.0
March	98.4	97.6	101.2	102.0	103.2	98.5	96.7
April	95.7	96.2	96.6	97.5	101.9	96.4	94.4
May	98.4	99.0	104.3	95.7	104.2	98.7	93.7
June	95.6	102.5	102.8	94.6	104.6	90.3	90.7
July	95.5	104.2	100.6	103.7	107.6	98.6	95.5
August	101.2	107.5	102.8	102.9	105.4	100.3	97.0
September	100.0	102.6	105.5	102.6	105.1	97.4	89.0
October	101.7	97.6	101.9	94.5	98.6	94.9	79.8
November	96.8	99.2	100.4	92.1	90.2	83.6	81.9
December	93.5	100.5	98.4	99.1	98.3	92.0	79.1
Average	98.5	100.1	101.4	99.4	102.1	95.4	90.8
<i>Silk and Rayon Manufactures—100.0=\$22.84</i>							
January	95.1	105.0	94.3	96.7	83.8	87.5	77.7
February	106.2	104.9	104.9	101.8	88.8	90.8	77.6
March	109.6	90.9	99.4	101.1	91.8	88.9	84.2
April	103.6	94.0	97.2	93.7	103.6	81.5	82.8
May	94.3	107.4	100.5	92.4	103.7	80.6	74.1
June	90.7	103.8	107.2	95.4	107.3	86.8	76.8
July	108.7	104.6	105.5	95.3	106.4	73.0	82.2
August	102.6	105.4	106.5	95.1	94.2	81.8	70.7
September	102.4	107.5	104.6	92.5	95.4	86.6	87.0

MONTHS	YEARS						
	1925	1926	1927	1928	1929	1930	1931
<i>Silk and Rayon Manufactures — Continued</i>							
October	100.0	89.9	90.2	93.3	92.0	81.6	84.9
November	99.8	92.5	85.2	92.4	88.8	84.7	70.9
December	90.8	95.2	99.7	86.9	93.5	83.8	63.0
<i>Average</i>	<i>100.3</i>	<i>100.1</i>	<i>99.6</i>	<i>94.7</i>	<i>95.8</i>	<i>84.0</i>	<i>77.7</i>
<i>Clothing, Women's⁴ — 100.0 = \$20.47</i>							
January	97.4	97.3	99.3	100.5	98.1	97.8	91.3
February	103.0	103.0	101.9	106.9	102.3	105.5	96.0
March	102.0	100.9	104.9	103.5	106.3	102.8	98.9
April	96.1	102.0	100.2	101.6	104.0	101.6	97.7
May	98.5	100.5	99.8	101.1	99.9	99.3	95.1
June	98.5	97.2	98.2	99.2	97.6	96.5	84.7
July	95.9	88.0	101.6	93.5	88.7	91.3	79.4
August	97.6	96.8	98.2	98.4	95.2	91.9	88.3
September	103.5	101.6	107.0	99.0	99.9	100.0	87.1
October	108.0	108.3	102.2	104.0	97.5	97.9	87.3
November	100.1	95.0	104.7	98.8	95.0	93.2	78.4
December	98.1	96.4	96.5	98.8	96.8	92.6	80.8
<i>Average</i>	<i>99.9</i>	<i>98.9</i>	<i>101.2</i>	<i>100.4</i>	<i>98.4</i>	<i>97.5</i>	<i>88.8</i>

¹ Includes the manufacture of radios and supplies.

² Includes both book and job, and newspaper publishing.

³ Includes the manufacture of men's, youths' and boys' clothing; furnishing goods; shirts; and suspenders, garters, and other elastic woven goods made from purchased webbing.

⁴ Includes the manufacture of corsets and allied garments.

CHARTS

A. TREND OF EMPLOYMENT AND EARNINGS IN PRINCIPAL MANUFACTURING INDUSTRIES IN MASSACHUSETTS, 1925-1931

Plate 1

TREND OF EMPLOYMENT AND OF AVERAGE WEEKLY EARNINGS
IN
MANUFACTURING ESTABLISHMENTS IN MASSACHUSETTS

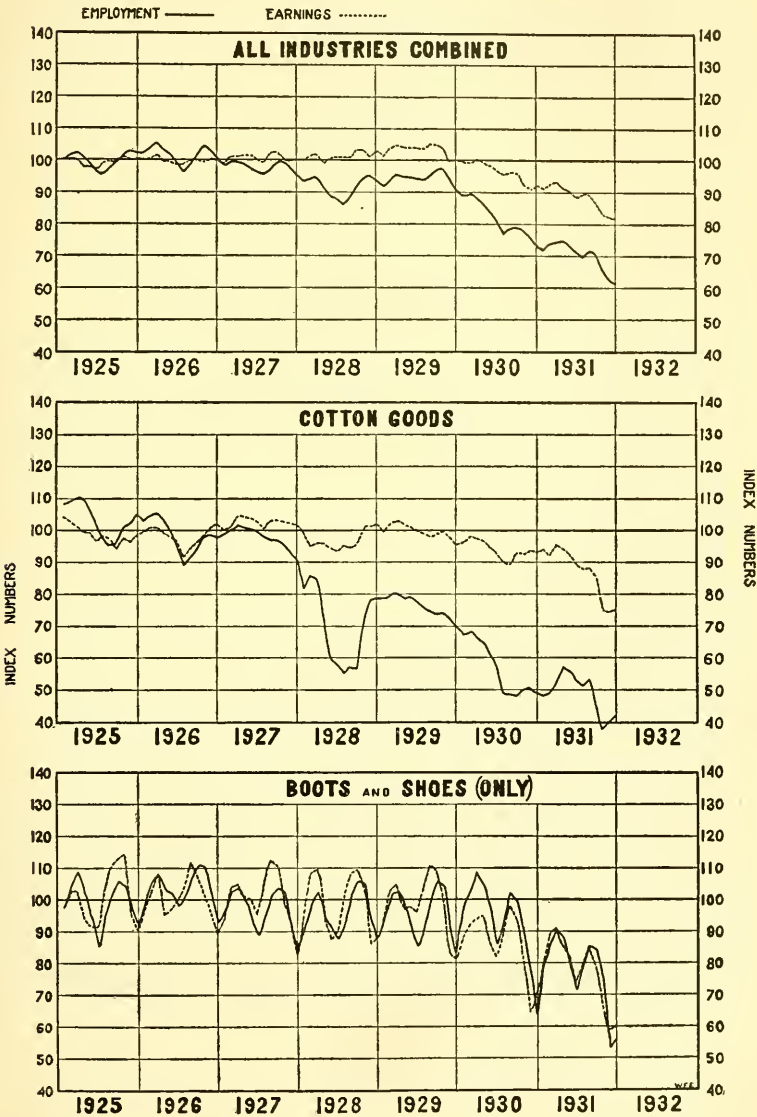


Plate 2

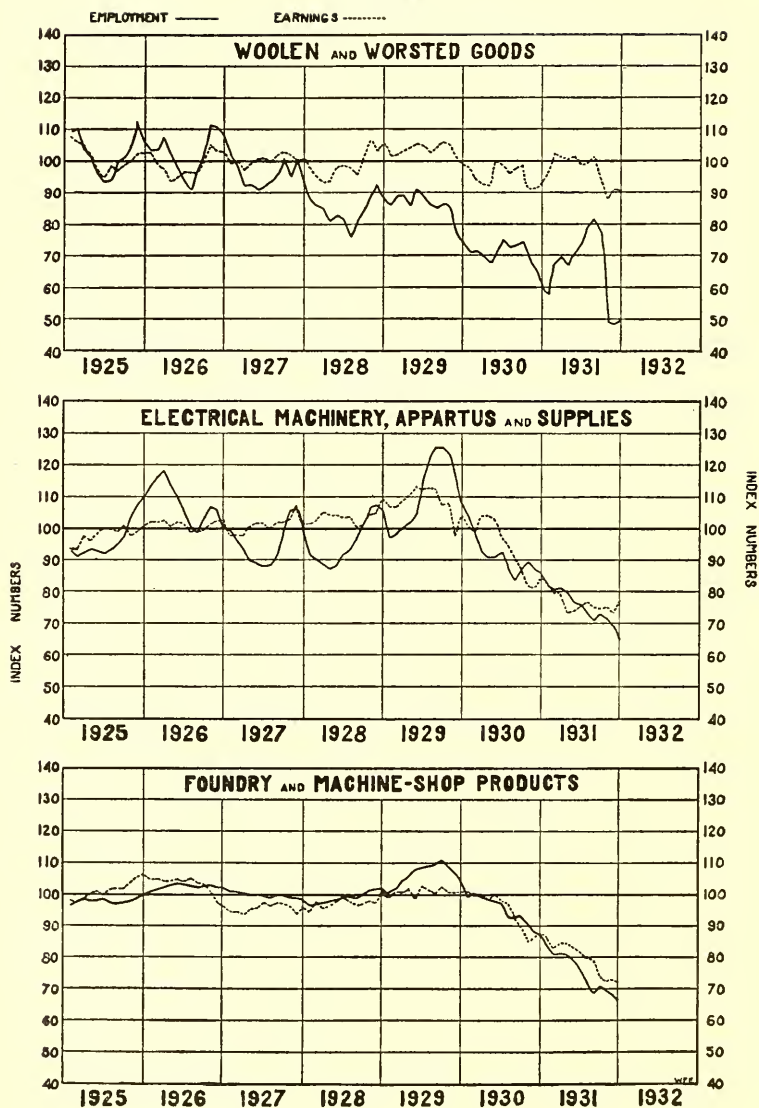


Plate 3

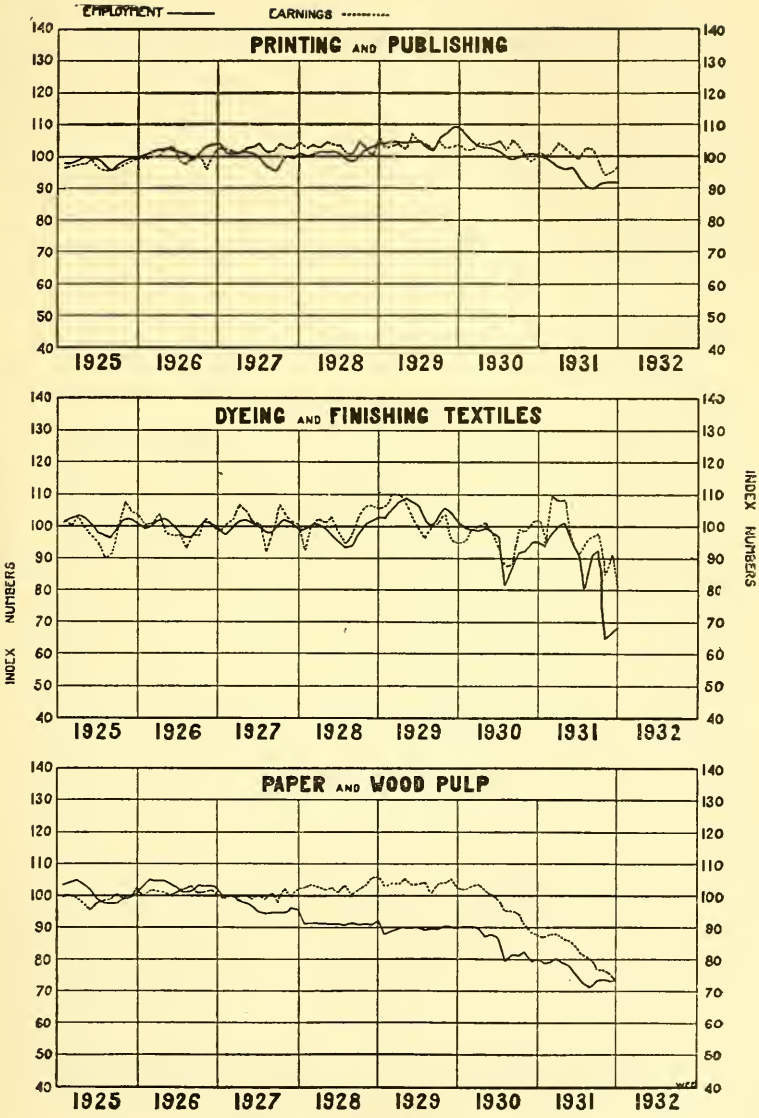


Plate 4

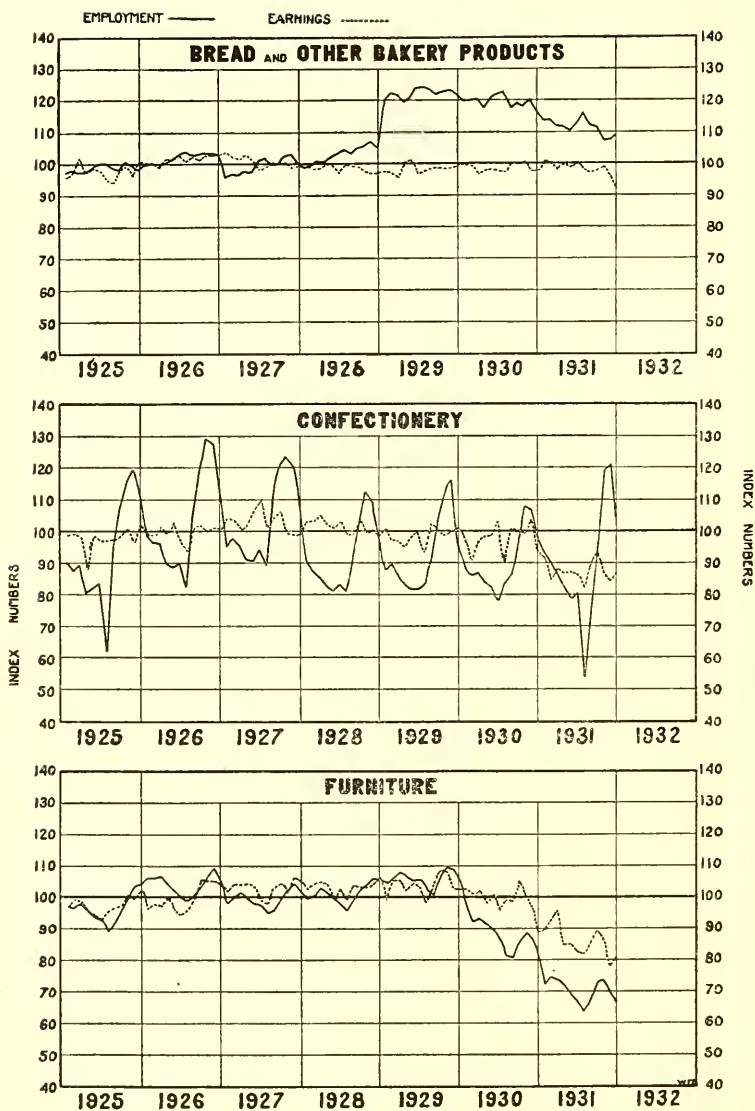


Plate 5

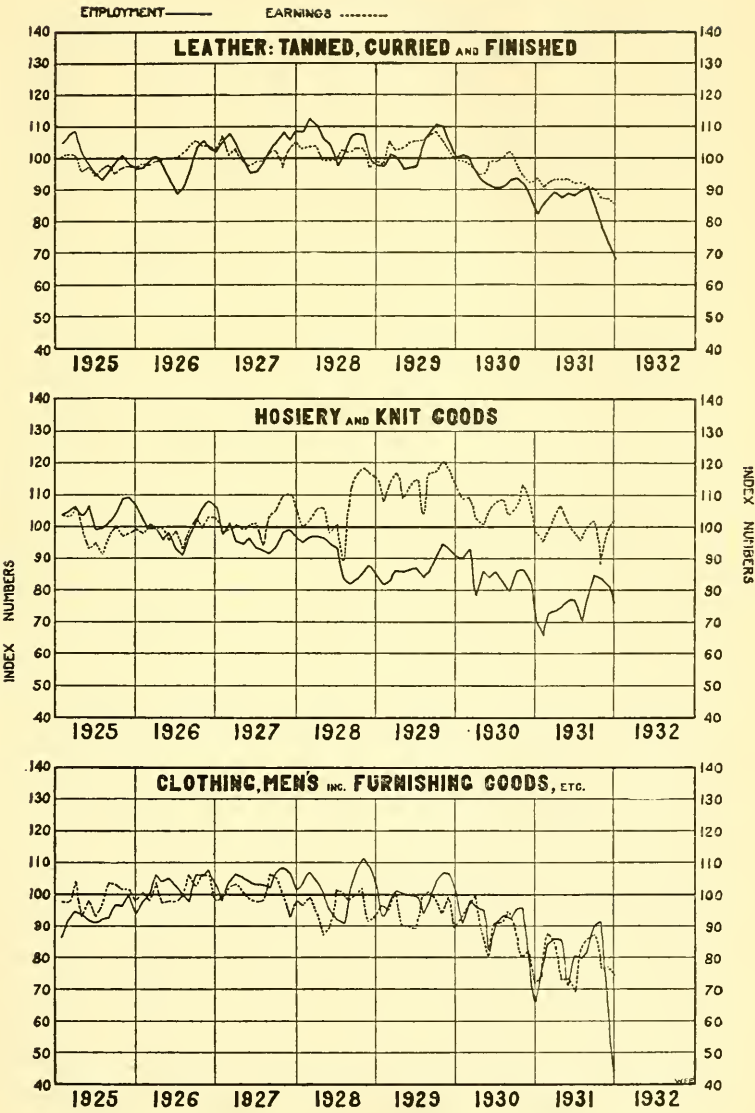


Plate 6

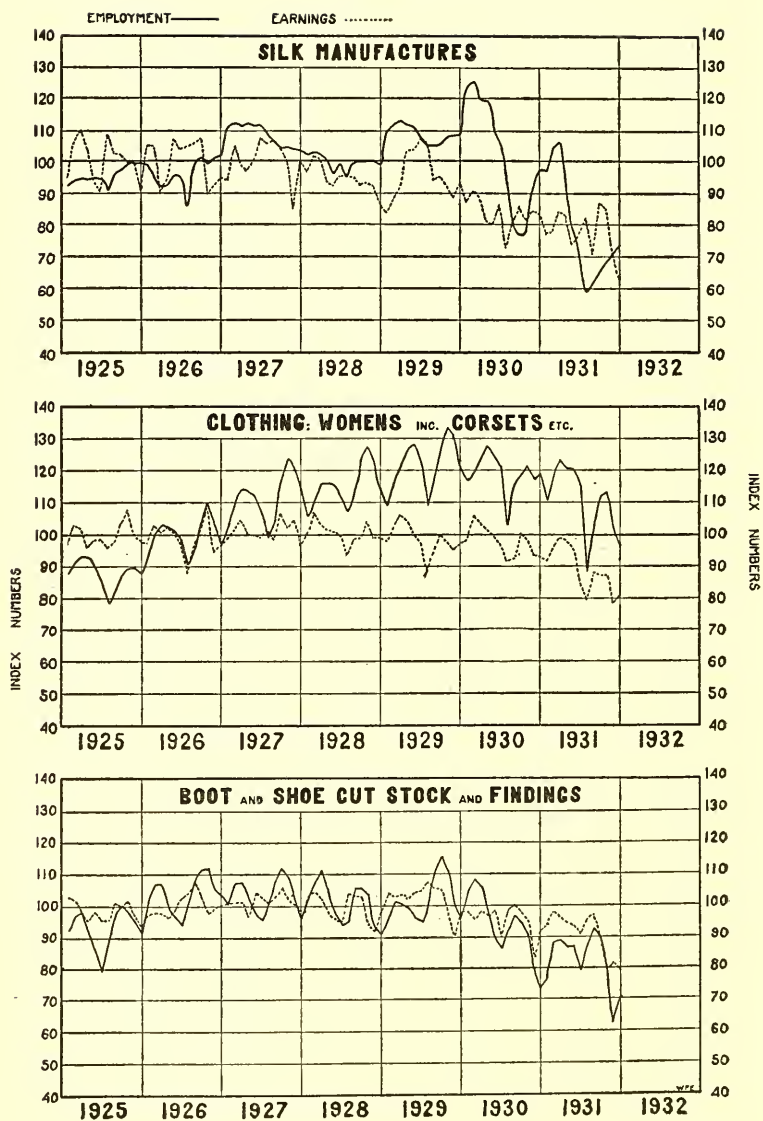


Plate 7

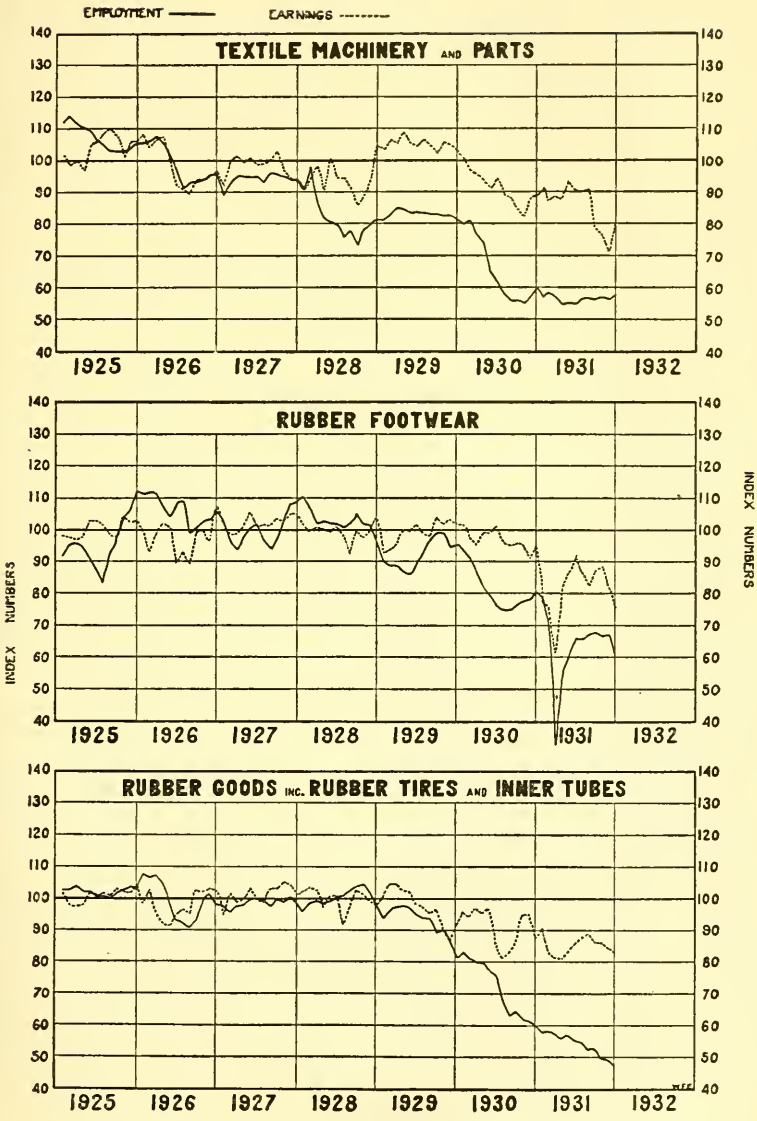
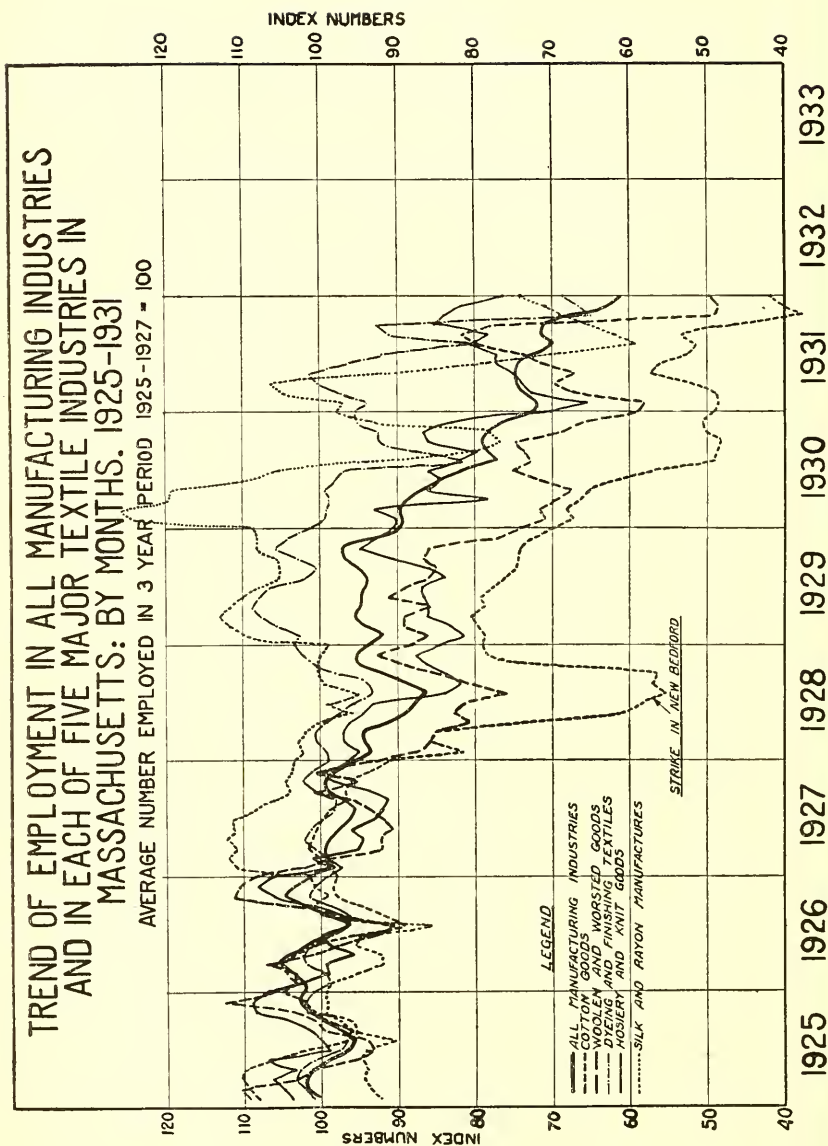
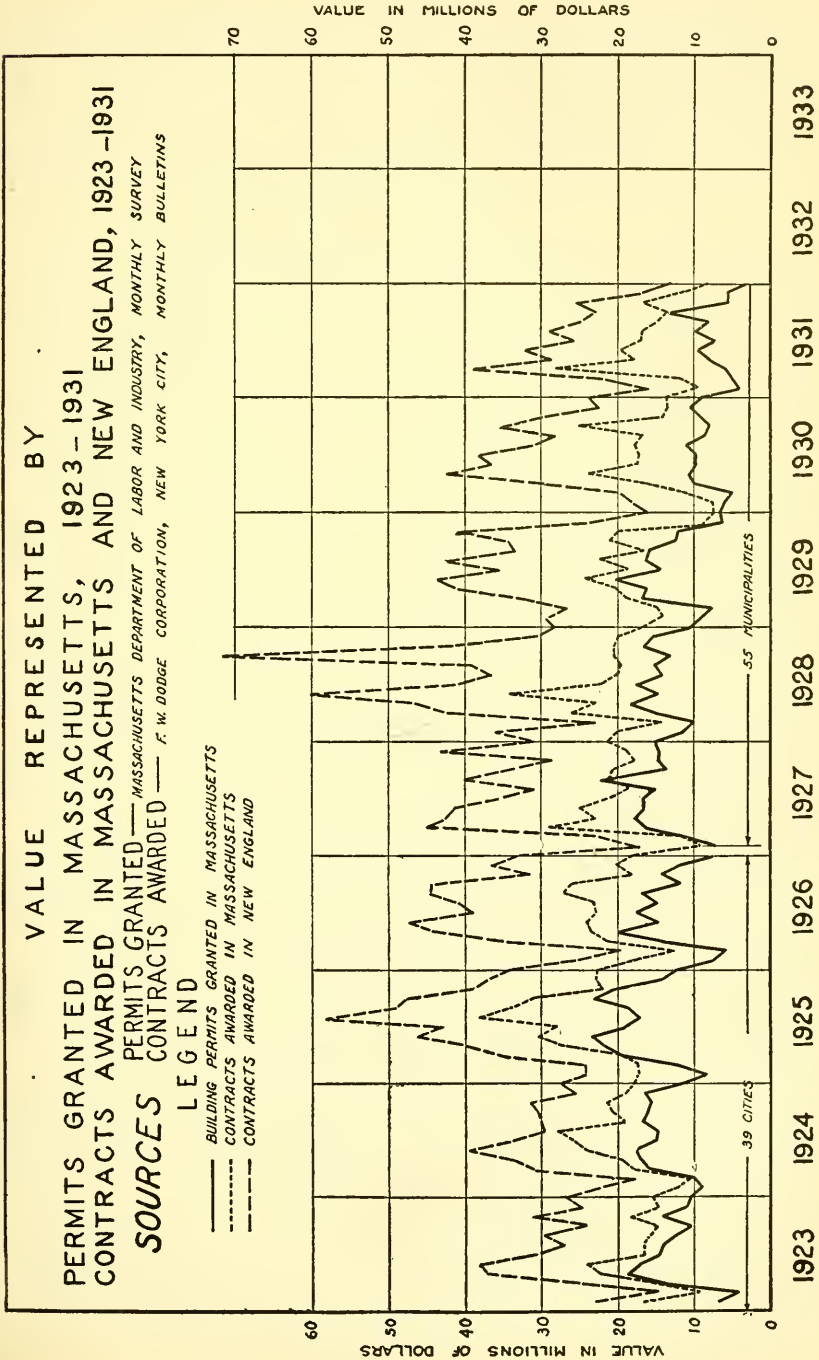


Plate 8



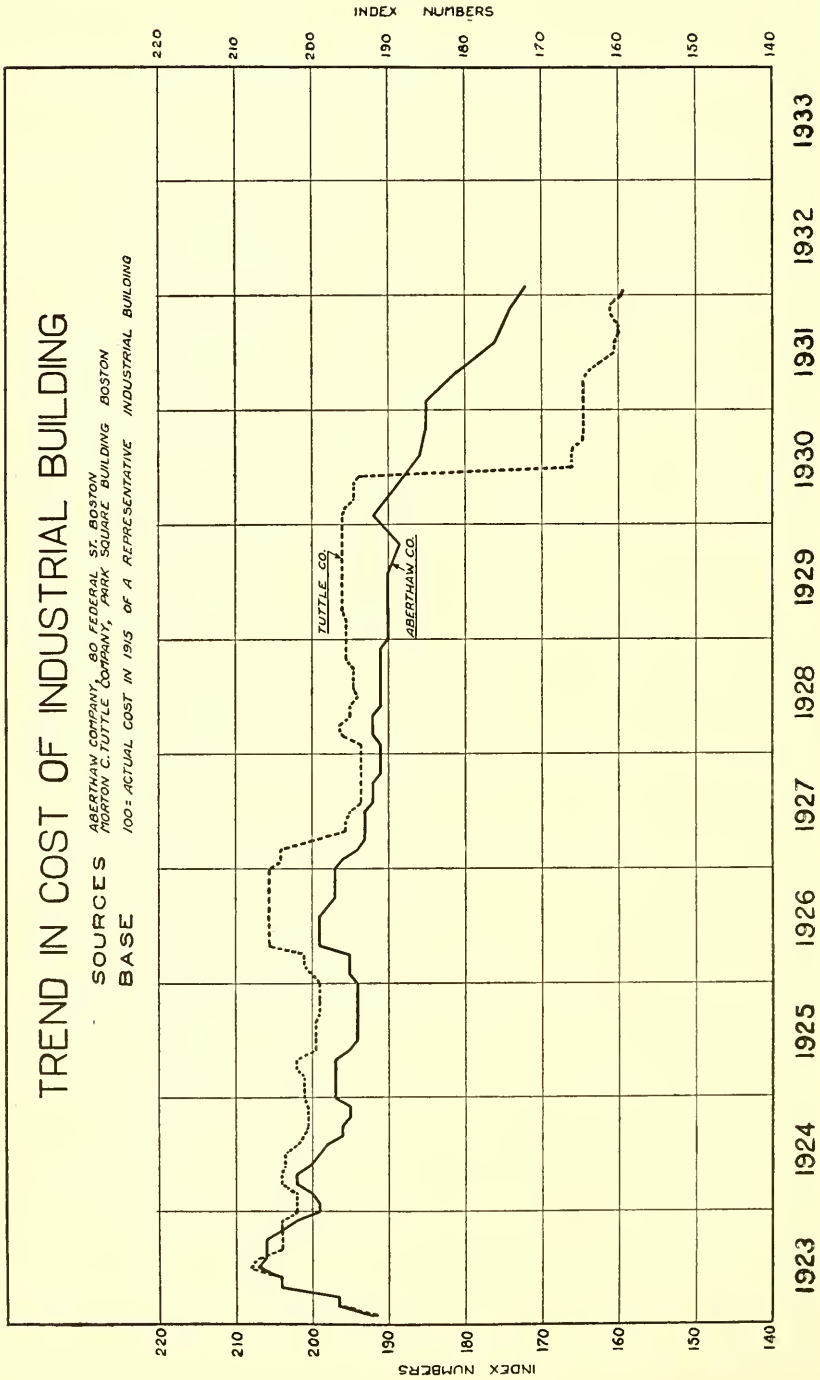
B. VALUE REPRESENTED BY BUILDING PERMITS GRANTED IN MASSACHUSETTS, 1923-1931 AND CONTRACTS AWARDED IN MASSACHUSETTS AND NEW ENGLAND, 1923-1931

Plate 9



C. TREND IN COST OF INDUSTRIAL BUILDING, 1923-1931

Plate 10



REPORT ON PUBLIC EMPLOYMENT OFFICES

ROSSELL F. PHELPS, *Director*

INTRODUCTORY

This report covers the operations, during the calendar year 1931, of the four public employment offices maintained by the commonwealth. These offices are located, respectively, at 23 Pearl street, Boston (main office); 25 Tremont street, Boston (mercantile office); Worthington street and Columbus avenue, Springfield; and 23 Foster street, Worcester. The statistical data herein presented, and, more particularly, the numbers of persons called for by employers and the numbers of positions reported filled, furnish a record of the services rendered by these offices to employers and applicants for employment. Comparable data for the calendar year, 1930, are presented for purposes of comparison.

THE LABOR MARKET

In 1930 and 1931, the demand for labor by employers within the districts served by the four state public employment offices fell far below that in any year during the past decade, and even in 1921 the effect of the depression in that year on the labor market was by no means so severe, or so prolonged. In order to secure positions for the greatly increased numbers of applicants, registrars have been sent out from the offices to an even greater extent than heretofore, with instructions to call upon employers for the purpose of acquainting them with the work of the offices. Through advertising, by telephone, and by circular letters, an endeavor has also been made to secure from employers an increased number of orders for workers.

None of these methods has proved in any large measure effective. Occasionally the registrars have secured new orders, and have added a few employers to the list of those who have been accustomed to make use of the offices, but usually the reports by the registrars were to the effect that the employers visited were endeavoring to retain those still employed, and the first additions to their force would be those whom they have found it necessary to lay off. Furthermore, employers are being urged by many representatives of social welfare and other agencies to employ persons who are in distress because of lack of work, and these agencies have become strong competitors of the State offices.

Because of these circumstances, the results obtained by these offices, as indicated by the number of positions obtained for applicants, were very disheartening, particularly in view of the fact that there has been an unusual pressure of work in interviewing the greatly increased number of applicants and in seeking positions for them.

I. STATISTICAL SUMMARY

The principal data relative to the work of the offices during the year, 1931, with corresponding data for the year, 1930, are presented in Table 1.

Table 1. — *Summary of Business of the Four State Public Employment Offices, During the Years 1931 and 1930*

OFFICES	1931			1930		
	Persons Called for by Employers	Persons Referred to Positions	Positions Reported Filled	Persons Called for by Employers	Persons Referred to Positions	Positions Reported Filled
Boston — main office	7,612	10,732	6,149	10,887	15,019	8,760
Boston — mercantile office	841	1,025	763	900	1,116	798
Springfield office	4,706	5,627	4,092	6,577	7,654	5,753
Worcester office	3,756	4,358	3,051	4,864	5,402	4,119
Totals — four offices	16,915	21,742	14,055	23,228	29,191	19,430

Positions Reported Filled. The total number of positions reported filled during the year 1931, by the four offices combined, was 14,055, which was less by 5,375, or 27.7 per cent, than the number (19,430) reported filled in 1930. At three of the

offices there were large decreases in the number of positions reported filled in 1931, as compared with 1930, as follows: Boston (main office), 29.8 per cent; Springfield, 28.9 per cent; and Worcester, 25.9 per cent. At the mercantile office in Boston there was a decrease of only 4.4 per cent.

Persons Called for by Employers. During the year, 1931, the total number of persons called for by employers at the four offices combined was 16,915, which was less by 6,313, or 27.2 per cent, than the number (23,228) called for in 1930. At each of the four offices there were decreases in the number of persons called for by employers in 1931, as compared with 1930, as follows: Boston (main office), 30.1 per cent; Springfield, 28.4 per cent; Worcester, 22.8 per cent; and Boston (mercantile office), 6.6 per cent. Of the total number of persons called for by employers in 1931 (16,915), 14,055, or 83.1 per cent were supplied, as compared with 83.6 per cent in 1930, and 82.2 per cent of 1929.

Persons Referred to Positions. The total number of persons referred to positions by the four offices combined during the year, 1931, was 21,742, which was less by 7,449, or 25.5 per cent, than the number (29,191) referred to positions in 1930. For the several offices, the percentage decreases in the number of persons referred to positions in 1931, as compared with 1930, were: Boston (main office), 28.5 per cent; Springfield, 26.5 per cent; Worcester, 19.3 per cent; and Boston (mercantile office), 8.2 per cent. In 1930 the total number of positions reported filled was 14,055, and, in order to fill these positions, 21,742 persons were referred to the employers, or an average of 1.5 persons for each position reported filled, which average was the same as that in 1930.

Records by Sex. In Table 2 principal data for the years 1931 and 1930 are presented by sex for each of the four offices, separately, and for the four offices combined.

Table 2. — *Summary of Business of the Four State Public Employment Offices During the Years 1931 and 1930: By Offices and Sex*

CLASSIFICATION	1931				1930			
	Registra- tions	Persons Called for by Employers	Persons Referred to Posi- tions	Posi- tions Reported Filled	Registra- tions	Persons Called for by Employers	Persons Referred to Posi- tions	Posi- tions Reported Filled
Boston—main office:								
Males . . .	4,972	5,197	7,353	4,202	4,989	7,865	10,766	6,288
Females . .	1,962	2,415	3,379	1,947	1,631	3,022	4,253	2,472
Totals . .	6,934	7,612	10,732	6,149	6,620	10,887	15,019	8,760
Boston—mercantile office:								
Males . . .	2,512	173	197	134	2,401	192	227	156
Females . .	3,709	668	828	629	3,309	708	889	642
Totals . .	6,221	841	1,025	763	5,710	900	1,116	798
Springfield:								
Males . . .	2,414	3,063	3,492	2,948	3,129	4,274	4,874	3,943
Females . .	2,103	1,643	2,135	1,144	2,525	2,303	2,780	1,810
Totals . .	4,517	4,706	5,627	4,092	5,654	6,577	7,654	5,753
Worcester:								
Males . . .	2,485	1,922	2,144	1,732	2,824	2,838	3,102	2,543
Females . .	1,517	1,834	2,214	1,319	1,324	2,026	2,300	1,576
Totals . .	4,002	3,756	4,358	3,051	4,148	4,864	5,402	4,119
Four offices combined:								
Males . . .	12,383	10,355	13,186	9,016	13,343	15,169	18,969	12,930
Females . .	9,291	6,560	8,556	5,039	8,789	8,059	10,222	6,500
Totals . .	21,674	16,915	21,742	14,055	22,132	23,228	29,191	19,430

Of the 14,055 positions reported filled during the year 1931 by the four offices combined, 9,016, or nearly two-thirds (64.2 per cent), were filled by males. At the main office in Boston, which is engaged principally in the placement of manual

workers (skilled and unskilled), 68.3 per cent of the positions were filled by males. At the Springfield office the number of positions filled by males constituted 72.0 per cent of the total number of positions filled by that office. At the Worcester office, 56.8 per cent of the total number of positions were filled by males. The mercantile office in Boston, which was established primarily for the purpose of securing positions for stenographers, bookkeepers, clerks, salespeople, and other employees in stores and offices, operates in a field of employment in which females predominate, and the number of positions filled by males constituted only 17.6 per cent of the total number of positions filled by that office.

Records by Months. The principal data relative to the activities of the four offices during the years 1931 and 1930, are summarized, by months, in Table 3. The months in which the largest numbers of positions were reported filled were April, May, September, June, March, and October, in the order as named. In 1931, as in former years, there was a lessened demand for workmen on building and highway construction work in January, February, November and December, because of seasonal conditions, and consequently the number of positions reported filled in each of these months was considerably less than in any of the other eight months of the year.

Table 3. — *Summary of Business of the Four State Public Employment Offices During the Years 1931 and 1930: By Months*

MONTHS	1931					1930				
	Office Days	Regis- trations	Persons Called for by Employers	Persons Referred to Positions	Positions Reported Filled	Office Days	Regis- trations	Persons Called for by Employers	Persons Referred to Positions	Positions Reported Filled
January .	26	1,953	1,245	1,588	1,083	26	2,171	1,737	2,248	1,511
February .	23	1,562	1,214	1,612	978	23	1,508	1,439	1,833	1,210
March .	26	1,926	1,574	2,061	1,261	26	1,922	1,908	2,507	1,580
April .	25	1,988	1,795	2,348	1,482	25	2,252	2,657	3,437	2,224
May .	25	1,991	1,741	2,243	1,453	26	2,201	2,787	3,439	2,254
June .	25 ¹	2,015	1,495	1,873	1,279	25 ¹	2,126	2,248	2,835	1,850
July .	26	1,693	1,260	1,578	1,082	26	1,629	1,775	2,150	1,526
August .	26	1,624	1,286	1,597	1,032	26	1,480	1,627	1,979	1,354
September .	25	2,232	1,625	2,132	1,303	25	2,208	2,265	2,880	1,859
October .	26	1,883	1,444	1,904	1,232	26	1,696	1,882	2,241	1,573
November .	23	1,297	1,098	1,385	888	24	1,490	1,425	1,766	1,250
December .	26	1,510	1,138	1,421	982	26	1,449	1,478	1,873	1,239
Totals	302	21,674	16,915	21,712	14,055	304	22,132	23,228	29,188	19,430

¹ The Boston offices were closed June 17th.

II. VETERANS

Special attention is given at each of the four state offices to the placement of veterans, and records relative to the service rendered them are kept separately. A summary of these records for the years 1931 and 1930, by offices, appears in Table 3.

The total number of veterans registered at the four offices during the year 1931 was 973, showing a decrease of 311, or 24.2 per cent, when compared with the number (1,284) registered in 1930. The total number of positions reported filled by veterans in 1931 was 1,209, which was less by 829, or 40.7 per cent, than the number (2,038) of positions reported filled by veterans in 1930 (See Table 4.) In explanation of the fact that the number of positions reported filled by veterans, and the number of veterans referred to positions exceeded the number of veterans registered, it should be stated that many of those registered were referred to more than one position or placed in more than one position during the year specified. Of the 9,016 positions reported filled by males during the year 1931, by the four offices combined, 1,209, or 13.4 per cent, were filled by veterans.

Table 4. — Number of Veterans Registered, Referred to Positions, and Number of Positions Reported Filled by Veterans, 1931 and 1930: By Offices

OFFICES	1931			1930		
	Regis- trations ¹	Referred to Positions ²	Positions Reported Filled ²	Regis- trations ¹	Referred to Positions ²	Positions Reported Filled ²
Boston — main office	436	839	536	740	1,820	953
Boston — mercantile office . . .	65	7	6	80	21	17
Springfield	351	624	530	343	971	869
Worcester	121	154	137	121	243	199
<i>Totals</i>	<i>973</i>	<i>1,624</i>	<i>1,209</i>	<i>1,284</i>	<i>3,055</i>	<i>2,038</i>

¹ Applicants for positions are registered but once each year, regardless of the number of times they apply for positions during the year.

² Includes duplications of individuals who were referred to more than one position or placed in more than one position during the year.

III. CLASSIFICATION BY INDUSTRIES AND OCCUPATIONS

In Table 5 data are presented showing the number of persons called for by employers and the number of positions reported filled in 1931, classified by industries or occupations represented, and by offices.

Of the 14,055 positions reported filled by the four offices in 1931, 5,958, or 42.4 per cent, were filled by casual workers and common laborers; 2,032, or 14.5 per cent, were in domestic and personal service; and 1,581, or 11.2 per cent, were in building and construction work. The metal and machinery trades, clerical occupations and wholesale and retail trades were also well represented. Special efforts have been made to increase the service rendered to persons seeking employment in stores and offices, and 1,025 positions of this nature were filled by the four offices in 1931. The mercantile office in Boston, established in January, 1922, primarily for the placement of applicants for such employment, filled 763 of these positions.

Table 5. — Number of Persons Called for by Employers and Number of Positions Reported Filled in 1931: By Industries and Offices

INDUSTRIES AND OCCUPATIONS	NUMBER OF PERSONS CALLED FOR BY EMPLOYERS				NUMBER OF POSITIONS REPORTED FILLED			
	Boston, Main Office	Boston, Mer- cantile Office	Spring- field Office	Wor- cester Office	Boston, Main Office	Boston, Mer- cantile Office	Spring- field Office	Wor- cester Office
Agriculture	45	—	195	153	37	—	170	117
Building and construction . . .	1,400	—	264	204	1,135	—	252	194
Casual workers	1,257	—	2,651	1,825	1,223	—	2,623	1,819
Chemicals, oils, paints, etc. . .	12	—	—	—	5	—	—	—
Clay, glass and stone products . .	—	—	—	—	—	—	—	—
Clerical, professional, and technical	—	533	62	49	—	508	53	25
Clothing and textiles	220	—	11	76	165	—	8	44
Common labor (not casual workers)	236	—	63	50	206	—	56	31
Domestic and personal service . .	1,462	—	883	1,013	1,061	—	431	540
Food, beverages, and tobacco . .	109	—	17	9	76	—	16	6
Leather, rubber, and allied products	173	—	4	3	138	—	3	3
Lumber	—	—	46	18	—	—	46	12
Metals and machinery	659	—	166	99	456	—	148	77
Musical instruments	—	—	—	—	—	—	—	—
Paper and printing	347	—	26	8	291	—	21	6
Shipbuilding	405	—	2	6	297	—	1	—
Theatres and amusements	24	—	3	6	18	—	3	8
Transportation and public utilities	90	—	39	32	52	—	33	22
Wholesale and retail trade . . .	36	308	117	99	30	255	92	62
Woodworking and furniture . . .	31	—	32	11	23	—	27	9
Miscellaneous	1,106	—	125	95	936	—	109	76
<i>Totals</i>	<i>7,612</i>	<i>841</i>	<i>4,706</i>	<i>3,756</i>	<i>6,149</i>	<i>763</i>	<i>4,092</i>	<i>3,051</i>

IV. COOPERATION WITH THE UNITED STATES EMPLOYMENT SERVICE

The department continued to cooperate with the United States employment service during the past year, and the commissioner of the department served as federal director for Massachusetts. The federal service provided for the payment of salaries of two employees, one of whom is examiner-in-charge of the mercantile employment office in Boston and the other is superintendent of the Westfield office (a federal-municipal office). The total contribution of the federal bureau on account of the salaries of these two employees during the year was \$4,279.29. There was some saving to the department as a result of the use of the franking privilege in connection with the placement work of the state offices. The department granted desk room at the state mercantile office in Boston for two employees of the federal service.

In addition to the four state offices, fifteen other offices in Massachusetts are now cooperating with the United States Employment Service. These offices are as follows:

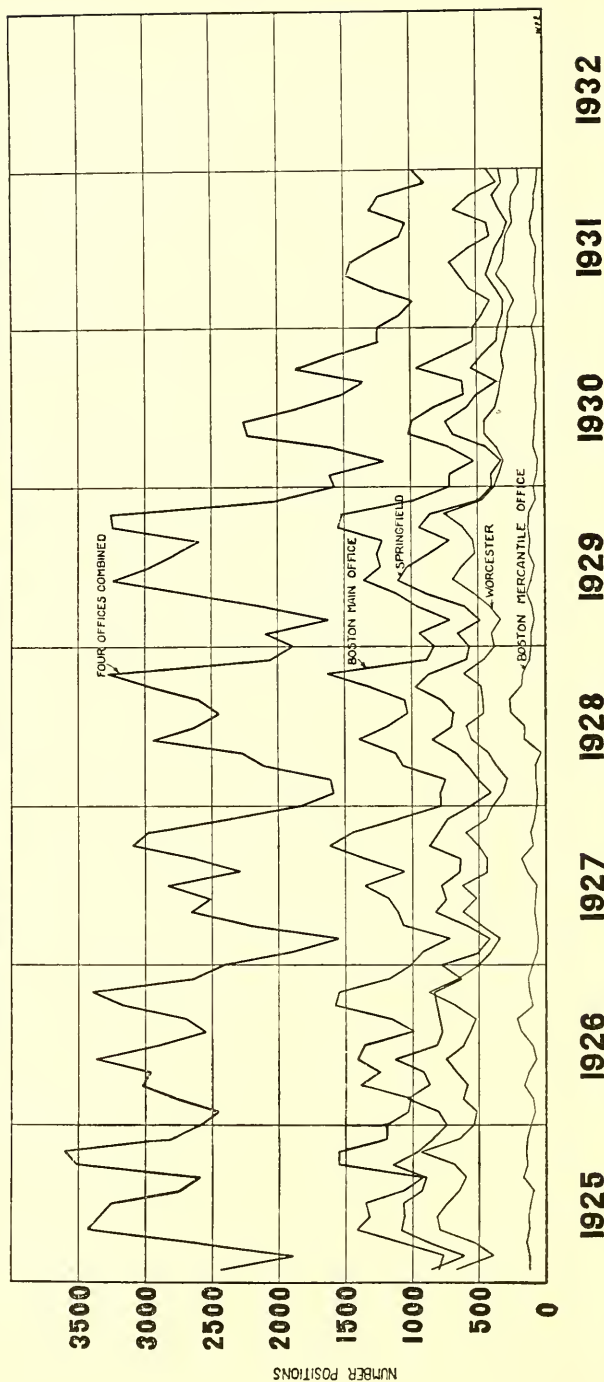
Boston	.	.	Municipal Employment Bureau
Boston	.	.	Boston Urban League
Chelsea	.	.	Chamber of Commerce
Fitchburg	.	.	American Legion, Post No. 10
Framingham	.	.	Civic League
Holyoke	.	.	Municipal Employment Bureau
Lowell	.	.	Chamber of Commerce
Lynn	.	.	Municipal Employment Bureau
New Bedford	.	.	Board of Commerce
Peabody	.	.	Municipal Employment Bureau
Revere	.	.	Municipal Employment Bureau
Somerville	.	.	Municipal Employment Bureau
Waltham	.	.	Chamber of Commerce
Watertown	.	.	Chamber of Commerce
Westfield	.	.	Municipal Employment Bureau (federal-municipal)

During the year the employment offices operated by the New Bedford board of commerce, the City of Peabody and the City of Revere entered into cooperative relations with the federal service, and the office operated by the Watertown chamber of commerce, which was closed in March, 1930, reopened in September, 1931, and resumed cooperative relations with the federal service.

The cooperating offices are required to furnish monthly reports to the federal service and to conform to certain regulations with reference to their operation. The federal service supplies certain standard forms for their use and appoints one representative in each office, usually the superintendent or manager, as a special agent of the federal service, at a salary of one dollar a year, and grants the use of the franking privilege in connection with the placement work only of the cooperating offices.

CHART

**NUMBER OF POSITIONS REPORTED FILLED BY THE FOUR STATE
PUBLIC EMPLOYMENT OFFICES IN MASSACHUSETTS, 1925-1931**



REPORT OF THE MASSACHUSETTS INDUSTRIAL COMMISSION

LEON M. LAMB, *Executive Secretary*

The second annual report of the Massachusetts industrial commission for the year ending November 30, 1931, is herewith submitted.

In accordance with the provisions of chapter 357 of the acts of 1929 under which the commission was created, twelve regular monthly meetings have been held. In addition to the regular meetings required by statute, five special meetings have been held for group conferences as hereinafter set forth.

CONFERENCES WITH REPRESENTATIVES OF LABOR AND OF INDUSTRY

During the year four conferences have been held with representatives of organized labor and of industry. At these meetings there have been free and frank yet amicable discussions of industrial conditions in Massachusetts and of the causes which have tended to handicap some of our industries in competition with those of other states having longer hours of labor, lower taxes, less restrictive legislation and lower compensation insurance costs. The equalization of these conditions between industrial states is a matter of concern to both employer and employee.

The conferences have served as a medium for the exchange of viewpoints on industrial relations and the probable effects upon industry of legislative bills proposed for enactment.

The plan of holding such conferences has been commended by those who have attended, and it is believed they have been productive of good results.

TARIFF ON SHOES

At the request of certain secretaries of shoe manufacturers' associations, the commission on February 10th, held a special meeting with representative shoe manufacturers and association secretaries to consider what attitude would be taken by manufacturers in hearing scheduled for March 26, before the United States Tariff Commission, such hearing to be held under the Borah resolution, so-called, demanding an investigation of the tariff on shoes.

After a thorough discussion of the situation, it was definitely decided that our manufacturers would prepare and present evidence supporting a demand for the retention of the 20 per cent duty then in effect as absolutely necessary for their protection.

The support of the National Boot & Shoe Manufacturers' Association was also solicited in the following resolution which was adopted and forwarded to the secretary of that organization.

Resolved: That it is the sense of this meeting that the National Boot & Shoe Manufacturers' Association be requested to consider means and adopt plans for appearance before the United States Tariff Commission at the hearing March 26, for the purpose of presenting evidence to substantiate present tariff rates on imported shoes and be prepared to combat any attempt to lower such rates as are now in effect.

Further Resolved: That the representatives of the different associations present desire to aid, assist and cooperate with the National Boot & Shoe Manufacturers' Association in this undertaking.

Subsequently the commission cooperated with the Lynn Chamber of Commerce in securing the influence of Senator Walsh and Representative Connery to procure a postponement of the hearing for a few weeks in order to give our manufacturers sufficient time to prepare their case.

The hearing was, therefore, set forward to May 26, 1931. Commissioner Watt was delegated to attend the hearing representing this commission in support of the manufacturers' cause.

It is gratifying to report that the Tariff Commission allowed a 50 per cent increase in the duty on McKay shoes, which finding has had the approval of President Hoover.

AGRICULTURAL MARKET SURVEY

Although it is a generally accepted fact that Massachusetts people consume a vast amount of farm products brought in from other states many of which might be supplied by our own farms, no comprehensive investigation has ever been made to ascertain the movement into and out of the state of some of the principal farm products we can and do raise.

Inasmuch as it seemed information of this kind would be of immense value to our agriculturists, a survey was authorized to gather this data.

Since the report cannot now be printed in full for reasons of economy, it may best be summarized by quoting a digest of its contents which appeared in the *Boston Evening Transcript*, November 24, 1931.

"In a few instances Massachusetts is self-sustaining in the matter of food production. In most cases the state raises only a fraction of what the people here consume. One explanation of the failure to produce enough to meet consumer demand is that the state's diet has become so well balanced that it contains about as much fresh fruit and vegetables in the cold season, when none is raised in this part of the country, as it does in the height of the summer season and the outside states accordingly have to be drawn upon to supply the wants in those months.

"Significance attaches to a report that has just been made on this subject which discloses new business possibilities for the agricultural sections of Massachusetts. They can never satisfy all the demands of the state for fresh fruit and vegetables, or other agricultural products, but they can take advantage in larger measures of the fact that the best market for their products is right here in their midst where the consumer can be reached without heavy freight expenses, storage or refrigeration costs.

Use and Home Produce

"It is shown by this survey that Massachusetts uses about 11,000,000 bushels of potatoes a year and produces only 1,538,000 bushels; uses 76,000,000 dozen eggs and produces less than 2,000,000 dozens; uses 3,454,600 bushels of apples and raises 2,600,000 bushels.

"Cranberries form an outstanding exception to the rule; because Massachusetts is the principal source of production for the whole country. About 11,000 barrels of cranberries are used in this state, per year, and nearly 370,000 barrels are produced. This leaves a great surplus of cranberries which the state exports to other parts of the country, shipments by railroad out of the state amounting to 321,823 barrels last year. Here the contention is that the Massachusetts cranberry growers could increase their business by cultivating the market, which they are doing in a most efficient way by canning and advertising.

"Onions constitute an important item in the diet, and are sold in great quantities, and Massachusetts is raising almost enough for the home consumption. The consumption is 1,250,000 bushels and production 1,078,000 bushels. There cannot be complete coverage of the home consumption, for the reason that the average family has acquired a taste for various kinds of onions that cannot be grown in Massachusetts. Usually the market has three or four varieties, some of which are imported. The neighboring state, Connecticut, is a great onion-producing state.

"In the case of onions, as with many other kinds of vegetables and fruit, the Massachusetts growers are not bidding for the home market alone. They export a good deal of their products, even when the home market would take more. Shipments out of the state by railroad alone amount to about 90,650 bushels of apples, 5,000 bushels of potatoes, 279,000 bushels of onions and 322,000 barrels of cranberries. Annually Massachusetts ships to other parts of the United States an average of 3,491 carloads of fruit and vegetables. The crops that contribute prominently to the export business are apples, cabbage, carrots, cranberries, onions, peaches, potatoes, turnips, strawberries.

Volume of Imports

"There come into Massachusetts in the course of a year, through the fruit and vegetable terminals in Boston, Worcester and Springfield, 1,451 carloads of apples, 4,823 carloads of grapes, 1,100 carloads of peaches, 834 carloads of pears, plums and prunes, 8,166 carloads of grapefruit, lemons and oranges, 1,215 carloads of straw-

berries, 3,188 of cantaloupes and watermelons, 1,559 of cabbage, 984 of celery, 2,033 of lettuce, 2,085 of onions, 11,162 of white potatoes, 1,024 of sweet potatoes and 1,685 carloads of tomatoes.

"Forty states in the Union contribute toward these imports. Estimated market value of products trucked into Boston in the 1930-31 season are as follows:

<i>Product</i>	<i>1930-31</i>	<i>1929-30</i>	<i>Product</i>	<i>1930-31</i>	<i>1929-30</i>
Asparagus	\$252,062	\$299,138	Escarole	\$31,033	\$29,541
Beans — Faba	3,008	1,608	Lettuce — hothouse	132,534	159,409
Green	183,574	162,829	Iceberg	24,684	14,925
Lima	33,714	19,883	Outdoor	131,214	186,854
Shell	40,570	38,481	Pansies	17,454	24,201
Wax	107,289	87,988	Parsnips	89,754	130,608
Beets	117,550	134,815	Peas	33,050	28,371
Broccoli	27,735	—	Peppers	91,911	62,906
Cabbage	126,416	211,886	Radishes — hothouse	88,834	97,008
Carrots	219,843	229,677	Outdoor	36,063	44,779
Cauliflower	66,834	89,410	Rhubarb	102,951	97,123
Celery — Pascal	202,603	218,418	Spinach	232,483	222,159
White	183,765	199,036	Squash — blue hubbard, marrow, turban	87,831	179,118
Corn — white	7,671	88,823	Green	13,385	16,401
Yellow	206,865	185,299	Summer	30,761	38,337
Cucumbers — hothouse	665,787	715,647	Strawberries	228,148	206,228
Outdoor	38,130	26,362	Tomatoes	475,534	519,616
Dandelions — hothouse	34,130	41,512			
Outdoor	31,254	22,666			
Eggplant	17,125	13,949			
				\$4,413,579	\$4,845,011"

RADIO BROADCASTS

During the months of May and June, there was delivered a series of radio talks on the attractions of Massachusetts from the recreational viewpoint, Stations WBZ and WBZA having kindly granted the commission the time and use of their facilities for this purpose.

Following is a list of the speakers and the subjects of their talks arranged by the commission:

<i>Date</i>	<i>Subject</i>	<i>Speaker</i>
<i>1931</i>		
May 2	Attractions in and around Boston	Honorable James M. Curley, Mayor of Boston
May 9	Cape Cod and the Islands	Honorable Charles L. Gifford, Congressman from 16th District
May 16	The Beauties of the North Shore and Cape Ann	Honorable William P. Connery, Jr., Congressman from 7th District
May 23	The Berkshires	Honorable Allen T. Treadway, Congressman from 1st District
May 30	The Mohawk Trail	Mr. Robert P. Dolan, Secretary, Greenfield Chamber of Commerce.
June 6	Central Massachusetts' Hills, Lakes and Streams	Dr. Arthur W. Gilbert, Commissioner of Agriculture
June 13	Fish and Game in Massachusetts	Mr. William C. Adams, Director of Division of Fisheries and Game, Department of Conservation
June 20	Beauties and Attractions of the South Shore	Mr. Michael E. Hennessey, <i>Boston Globe</i>

The addresses elicited much favorable comment. The commission hereby acknowledges its grateful appreciation of the generous cooperation of the distinguished gentlemen who made possible this program of publicity for our state.

DIRECTORY OF STOPPING PLACES IN MASSACHUSETTS FOR TOURISTS AND VACATIONISTS

During the month of June there was issued a booklet entitled "A Directory of Stopping Places in Massachusetts for Tourists and Vacationists".

This booklet listed hotels, farms and wayside stations, boys' and girls' summer camps, golf clubs, gun clubs, skeet clubs and yacht clubs. The demand for this booklet exceeded expectations with the result that two editions were issued aggregating 20,000 copies, practically all of which have been distributed.

In this connection grateful acknowledgment is made of the excellent service rendered by students of the Massachusetts School of Art in preparing the cover design for the pamphlet.

The New England Telephone & Telegraph Company was exceedingly helpful in securing distribution of this Directory by making generous mention of it in connection with its advertisements, for which cooperation the commission records its sincere appreciation.

The many mail inquiries for this Directory were oftentimes supplemented by including booklets issued by various cities and towns of the commonwealth of which a file has been maintained.

MAGAZINE ARTICLES — PICTURES

At the beginning of the tourist season of 1931, articles were prepared for various motor and travel magazines setting forth the attractions of Massachusetts to those seeking rest and recreation, and submitted to such publications as "The Buffalo Motorist", "Motordom", "The Ohio Motorist", "Connecticut Industry", "Hotel and Travel News", "Boston Automobile Club". An article relating to the granite industry in Massachusetts was also prepared for the "Monumental World", Atlanta, Georgia.

In this connection mention may be made of a collection of pictures of Massachusetts' scenes, historical and otherwise, which was submitted to the American Automobile Association at its headquarters in Washington, District of Columbia, for prominent display.

Attractive pictures were also furnished the New York Automobile Club, Incorporated, in New York City, reproductions of which with "stories" furnished that organization, will appear the coming spring in connection with its publicity mediums.

At the request of the New England Council, lantern slides were furnished depicting interesting scenes in Massachusetts for exhibition along with those of other New England states at the council's annual meeting in November.

The Curtis publications have accepted an offer of Massachusetts pictures for use as scenic "tailpieces" in *The Saturday Evening Post*.

CAR ADVERTISING SIGNS

The commission having ascertained that it would be possible to place signs advertising Massachusetts in the cars of some of the trains of our railroads, the aid of the Massachusetts School of Art was solicited in designing a suitable card. The students cooperated in a most acceptable manner and submitted a collection of about twelve very attractive designs from which a selection was made. The designs were on exhibition at the industrial exhibit at the Copley Plaza Hotel conducted by the Associated Industries of Massachusetts in connection with its annual meeting held in October and attracted much favorable comment. It is hoped this means of inviting attention to the attractions and advantages of Massachusetts for industry, agriculture and recreation at no cost, except for the signs, may be availed of.

MASSACHUSETTS PAMPHLETS

During the year about 65,000 of the pamphlets relating to the industrial, agricultural, recreational and economic resources of Massachusetts have been distributed through various channels in addition to a great number issued in response to mail requests.

Supplies of the pamphlet were sent to the Grand Commandery of Knight Templars for distribution at its convention in Minneapolis, the Kiwanis International at its convention in Miami, the Boston Financial Advertisers Convention which was held in Boston and the Theta Chi Fraternity gathering held in Northfield, Vermont.

The commission had a booth at the Eastern States Exposition in Springfield from which Massachusetts circulars and booklets were distributed.

CONFERENCE WITH ORGANIZATIONS MAINTAINING TOURIST INFORMATION BOOTHS

Early in June a conference was held to improve, if possible, information service conducted for visitors by chambers of commerce within the commonwealth.

Representatives of chambers of commerce in the several sections of the state were present also a representative of the New England Council. Better methods of co-operation and a general exchange of ideas regarding the operation of information booths were considered.

MINERAL SUBSTANCES

During the year several inquiries have been received seeking information as to the existence of certain metallic and non-metallic minerals in Massachusetts. Were there a state geologist in the official state organization, such questions would naturally be referred to him for answer. These inquiries pertained to such substances as diatomaceous earth, fuller's earth, molybdenum, dolomite limestone and silica.

Acting upon the theory that such inquiries might be the embryos of new industries, provided the materials existed here, and lacking a geologist in the state organization, the commission has been obliged to consult our colleges and universities for knowledge of the subject to enable it to submit the proper information to the inquirer.

Investigation discloses considerable material extant on the geology of Massachusetts from official and independent sources. It has seemed important to the commission that a digest of this matter should be compiled and made available for use, consequently arrangements were made with a competent and experienced geologist for the preparation of such a compilation.

Evidence that the inquiry for dolomite limestone has within it possibilities of a new industry lay in the statement that if there existed material of proper specifications, 500 tons per day would be quarried. The commission is energetically pursuing this lead since material of the analysis required has been located.

Negotiations have also been continued in cooperation with one of our chambers of commerce looking to the establishment of a plant to make use of deposits of high grade trap rock and gravel in the manufacture of a much used product by a comparatively new process.

INDUSTRIAL DEVELOPMENT

During the two years this commission has been in active operation, this country has been in the throes of what many characterize as the worst business depression ever experienced.

There is scarcely an activity which has not felt its sting as its damaging effects have accumulated month by month, driving hope and faith from the hearts of millions of people and substituting therefor doubt, fear and uncertainty.

Under such conditions businesses have been obliged to conserve their assets. Operations have been drastically curtailed or practically abandoned for the time being; possible plans for expansion in other fields discarded and attention concentrated upon means of retrenchment and economy through concentration of manufacturing processes. Massachusetts has suffered from the effects of this devastating blight upon business although probably not in the same degree as some other sections of the country.

Under such circumstances the chances of success in any effort to induce industries located elsewhere to come to Massachusetts to establish branches or warehouses seemed rather remote.

Nevertheless, the experiment was tried by means of direct mail solicitation. Letters, pointing out the advantages of Massachusetts and accompanied by the pamphlet descriptive thereof, were mailed during the year to a selected list of industrial and consultant management engineers in certain sections of the country who were logically in a position to advise clients with reference to locations in this section.

Direct mail contact was also made with lists of manufacturers in New York and New Jersey.

Under this heading it may be apropos to comment briefly upon some of the industrial changes which have occurred in the commonwealth in the past few years.

We frequently read in the press of new concerns starting up in our midst, of the floor space they will occupy, the number of wage earners who will be employed, all of which contributes to the belief that we are growing industrially and that our progress in that respect is assured. That is only half the story and considers only additions to the industrial fabric. The true situation is revealed only when subtractions are considered also.

Consider, for example, the changes which occurred between the years 1923 and 1929, the former being the first good year for business following the postwar depression and the latter commonly described as a "boom" year despite the slump which developed during its last quarter.

During that six year period (1923-1929) there occurred a reduction in the average number of wage earners employed in our manufacturing industries of 110,245 persons; in wages paid \$104,875,023 and in the value of products, \$176,123,098. Of this loss in wage earners approximately 14,000 are accounted for in the shoe industry and about 62,500 in the textiles, — woolen and worsted and cotton.

If comparison is now made with other New England states using the period 1927 to 1929, it is found from United States Census of Manufactures figures that whereas Massachusetts suffered a decrease of 166 manufacturing establishments in that period the combined gain for the other New England states was 658 manufacturing establishments distributed among them as follows:

Maine, 131; New Hampshire, 37; Vermont, 50; Rhode Island, 196; Connecticut, 244.

During that two year period the average number of wage earners employed showed an increase in every New England state except Massachusetts and New Hampshire, the former showing a loss of 20,870 while the latter state showed a loss of 363 wage earners in manufacturing industries. Other New England states showed gains as follows:

Maine, 1,451; Vermont, 1,341; Rhode Island, 4,829; Connecticut, 12,662.

In per cent of value added by manufacture New England states ranked as follows: New Hampshire, less than 1; Massachusetts, 4.6; Maine, 6; Rhode Island, 15; Connecticut, 20; Vermont, 21.

One can hardly refrain from wondering in the light of these statistics why it is that the other New England states should surpass Massachusetts in one or more phases of industrial progress during two years of exceptional activity.

This condition seemed a matter so worthy of serious consideration as to demand an investigation to determine the underlying causes to account for such a situation for the prosperity of Massachusetts depends in such a preponderant degree upon its manufacturing industries that serious losses in the industrial fabric must be regarded with some apprehension.

With this thought in mind and after due consideration, the commission authorized Freeland, Bates & Lawrence, Incorporated, Boston, to make a "Brief Study of the Industrial Situation in Massachusetts". This investigation has been made and the report is on file with the commission.

LUDLOW MANUFACTURING ASSOCIATES

Upon appearance of reports in the press to the effect that the Ludlow Manufacturing Associates was apt to be excluded from bidding on twine for the use of the Post Office Department, the commission immediately proffered its services to the Ludlow Associates to protest the exclusion of manufacturers of jute twine from the bidding which proffer was promptly accepted. Accordingly telegrams were dispatched to the President, the Postmaster General and the Secretary of Agriculture pleading for fair play in the interest of our local industry and its employees. Subsequently the bids were opened to makers of jute twine, and the Ludlow company awarded the contract. Grateful acknowledgment was made of the commission's help in the matter.

MONTHLY SURVEY

In order that the commission might have current information regarding industrial development in the commonwealth, a monthly survey was instituted by which means, through the cooperation of the chambers of commerce and industrial bureaus of many cities and towns, data are being obtained monthly relative to new industries, additions to old plants, floor space used and number of employees required. This information is tabulated and released to the press.

MISCELLANY

The commission has rendered service at various times throughout the year in assisting inquirers in locating certain types of industrial property in which they were interested.

Prospective tourists in different parts of the United States have been furnished with Massachusetts booklets and advised regarding routes and points of interest within the state.

The commission has been represented at quarterly meetings of the New England Association of Commercial Executives also at the annual meeting of the American Industrial Development Council at Washington.

During the year the Executive Secretary has spoken before a meeting of the Greenfield Chamber of Commerce, the annual meeting of the Western Massachusetts Chambers of Commerce and several service clubs.

PUBLICITY

In addition to the cooperation received from the New England Telephone & Telegraph Company in donating advertising space to the commission, as previously acknowledged, other publicity was received amounting to over 3,200 inches. This was the equivalent of more than 150 standard newspaper columns and was in the form of news items, feature stories and editorial comment in newspapers and articles in magazines.

Much of this publicity was due to the efforts of the commission in keeping the press informed of its activities through the medium of news releases and special articles.

CONCLUSION

For the fiscal year beginning December 1, 1930, the commission submitted a budget soliciting an appropriation of \$81,635.00 of which amount \$50,000.00 was specified for advertising the advantages and attractions of Massachusetts. This item was eliminated by the budget commissioner on the ground that the commission had no authority under the statute to spend public funds for publicity purposes other than in the manner stated in the statute, that is, in the preparation and distribution of books, maps, charts and pamphlets.

The commission, in the conviction that it should have broader powers for publicity in view of advertising campaigns carried on by other states competing for industries and vacationists, introduced a bill (H518) seeking authority to use "any other appropriate means or mediums" to disseminate information respecting the industrial, agricultural and recreational interests of Massachusetts.

Subsequently the Honorable John F. Fitzgerald introduced a bill (H1075) to authorize the industrial commission to "advertise the recreational and industrial advantages of the commonwealth and for said purpose may expend such sums not exceeding in the aggregate one hundred thousand dollars as may hereafter be appropriated".

Both bills were favorably considered by the committee on state administration and joined in H1434 which on hearing before the committee on ways and means was reported out "referred to next annual session".

The budget of the commission was finally set at \$26,000.00 for the fiscal year beginning December 1, 1930. Such an amount is inadequate to enable the commission to function in a large and constructive way towards promoting the objects for which it was created.

Advertising for vacationists and tourists by states and by communities within several of the states has become the vogue. Various means and methods are used to that end. Moreover, similar mediums are used to attract new industries in the realization that thriving industries make thriving communities. While Massachusetts has many attractions in seashore, lakes, mountains and historical shrines to draw the tourist as well as many assets and advantages to attract the plant, branch-plant or warehouse, little expenditure is made by the municipalities or by the state to give publicity to these attributes.

To enlarge the opportunity for greater employment of wage earners, increase pay rolls and encourage the greater development of industries in the commonwealth, it is submitted that the state might well extend the powers of the commission and provide funds so that it can carry on suitable publicity and advertising to this end. There are records to indicate some measure of success has attended publicity and advertising efforts by other states.

REPORT OF THE DIVISION ON THE NECESSARIES OF LIFE

RALPH W. ROBERT, *Director*

INTRODUCTORY

The duties and activities of the division on the necessities of life are designated in sections 3, 9E, 9F, 9G, and 9H of chapter 410 of the acts of 1930. Under this law, the scope of which authorizes broad powers, the division is required "to investigate the circumstances affecting the prices of fuel, gasoline, refined petroleum products and other commodities which are necessities of life." The administrators of this work have endeavored to equitably adjust all cases brought to their attention and, by so doing, have brought about in the past year through mutual agreement of all parties concerned a material saving in commodity prices and a definite relief for thousands of our citizens from oppression and distress.

The routine activities of the division, in addition to the regular miscellaneous complaints and requests for information, included the compilation of domestic anthracite surveys; summary of fuels used in Massachusetts; monthly reports of anthracite and bituminous coal received at tidewater and by rail; New England all-rail coal receipts as indicated by number of coal cars passing east through the gateways; monthly reports on New England importations of fuel and various data relative to foreign fuels, and the monthly publication of the "cost of living" comparative index, all of which information has been in considerable demand by the department of commerce and department of labor, Washington, D. C., libraries throughout the country, chambers of commerce, wholesale and retail trade organizations, clubs, fraternities, welfare societies and interested individuals.

The division has completed "cost of living surveys" for the city of Waltham, the town of Plymouth, and is at present engaged on a special survey of retail prices for the town of Watertown.

Complaints were received from the city of Worcester and several towns on Cape Cod regarding the prices charged for gasoline. An investigation by the division resulted in a substantial readjustment of this condition to the satisfaction of all concerned. A special investigation is being conducted into the prices charged for ice cream, a report of which will be submitted at a later date.

Considerable study has been given to the methods of merchandizing milk, and observations of this subject will be presented in another section of the report.

It is not the contention of the division nor is it intended that our activities supercede the economic law of supply and demand, but we do contend that this law is theoretically inoperative, unless the facts concerning the cost of production, distribution and merchandizing are presented for public consumption.

We have encountered very little arbitrariness on the part of producers, wholesalers or retailers in our activities for the past year. On the contrary, in practically every instance where either of these elements were concerned in what the division believed to be an unfair price for a commodity, they have acceded to our requests.

It was rarely necessary during the past year to invoke the authority to issue summons for the production of books and other records. In each instance where it became necessary, the parties concerned upon appearance attributed their failure to comply to their own personal carelessness rather than to an endeavor to conceal facts. It has been our experience that the power of moral suasion and publicity for the enforcement of recommendations and suggestions reacts to the accomplishment of a better understanding than could be brought about by more drastic price-fixing legislation.

The fact that prices of anthracite coal have not been reduced correspondingly with prices charged for other commodities has given the division much concern and will be elaborated upon in the coal section of this report.

The condition commonly known as "depression" has resulted in increasing numbers coming personally to the offices of the division for the purpose of obtaining advice and assistance. On over 5,000 occasions during the past year, the division was able to readjust conditions that prevented evictions from the home, loss of

wages as the result of attachments, loss of furniture and other household necessities because of foreclosure on leases, and numerous other problems which confront those out of regular employment. In an endeavor to relieve suffering in the instances outlined above, the personnel of the division have concentrated their efforts and, through a friendly presentation of circumstances affecting the individual's inability to adhere to obligations contracted for prior to present unforeseen conditions, they have been able to convince the holders of the contracts alluded to of the reasonableness of our request. This system in the long run reacts beneficially to all parties concerned.

For the purpose of giving a more thorough explanation of this part of our activities, three typical cases are herewith outlined:

1. Installment Purchase

A person having an income of \$200 a month purchases furniture at a cost of \$1,000. The terms of this purchase are \$100 cash upon delivery and \$25 monthly until the balance is paid. This would mean in the ordinary course of events that it would take three years to pay off the balance.

At the beginning of the third year, the holder of the furniture loses his position and is unable to procure another one. In the meantime he has utilized all of his earnings to pay such bills as are outlined above, plus the cost of current necessities. He finds himself without income and unable to meet the obligations contracted for prior to this unforeseen curtailment of income. The holder of the mortgage on the furniture (the furniture company) notifies him after the first month that payments are to be expected and that after the third month notification would be sent informing him that a truck would be sent to the premises for the purpose of repossessing the furniture for which he has failed to pay, notwithstanding the fact that this man has already paid in \$700 and is now faced with the possibility of losing the \$700, plus the furniture which provides the necessary utility in the home.

He comes to the offices of this division and one of the personnel immediately contacts the furniture house involved by telephone which, after the presentation of facts, has almost invariably suspended payment for a period or rearranged the lease to allow the receipt of much smaller monthly payments.

Certain dealers of this type have definitely refused to deviate from the original contract and notwithstanding the distress resulting from repossession have apparently delighted in doing so for the sole purpose of encumbering storage warehouses with goods that there is but little possibility of disposing of at resale. Fortunately, this type of dealer is in the minority, and when such conditions have been found to exist, we have been able to obtain the cooperation of more humane concerns, who have taken second-hand furniture from storage and sent it free of charge to families that would otherwise be without ordinary living facilities. Several cases of this type are called to our attention and adjusted daily.

2. Rental Adjustment

One six-family apartment house in Metropolitan Boston was occupied by five non-paying tenants and the landlord. The owner worked daily and had a very moderate income but had willingly allowed all of the tenants who were without employment to remain without the payment of rent for from two to six months. He did not realize that he was jeopardizing himself to the extent of losing his property until mortgage interest became due. In this particular case, it became necessary to take immediate action to protect the owner from the loss of his property and also to protect the tenants without resources from the loss of necessary shelter.

We communicated with the welfare department in that community and were informed they were prohibited from paying the rent then due but could pay one month's rent at another apartment and, therefore, suggested that a regular process of eviction be allowed and the constable informed of the arrangement with the welfare department, who would in turn move the furniture to the new apartment selected. In other words, the owner who had allowed five non-paying tenants to remain for several months could not be compensated, but the owner of the property to which the tenants moved was assured of one month's rent. He would, however, have to depend upon the tenants' ability to find work in the meantime to be assured of rent beyond that period.

This is only one example of hundreds of similar cases that have been called to the attention of the division. In this connection, it is hoped that local welfare departments may be able to investigate the circumstances of individual cases such as this and give some consideration to the home owner who has carried the burden for a long period.

While the division has always encountered a certain number of eviction cases, either after a regular 30-day notice or a 14-day notice for non-payment of rent, during the past year we have had an unusual number called to our attention. In this type of case, particularly those for non-payment of rent, we have interceded with home owners in an endeavor to procure postponement of the eviction process. In cases where rent is in arrears from one to two months, home owners have usually withdrawn this action, notwithstanding the fact that in most instances the receipt of this rent is absolutely necessary to protect the owner's equity in the property. In some cases called to our attention tenants had not paid rent for a year.

3. Wage Attachment

A man, with a family of four children and wife, procured work after having been unemployed for several months. During this period he had been able to obtain credit for groceries from two stores and clothing from one store. The total amount of his indebtedness in this respect was \$85. The second week of his employment his wages were attached by one of the grocers and the third week, after having his wages attached by the other grocer, he was informed that his services were no longer required.

This brought to the attention of the division misunderstandings that are quite general throughout the commonwealth and result in unnecessary hardship, which could be prevented if the parties involved would interest themselves in the general welfare of the individual. Although there are isolated cases of the type of people who never intend to pay their bills, it is presumed that most people are intentionally honest, but sometimes friendly guidance is the solution of what might be an abuse of credit.

In the case outlined above, the grocers were able to attach \$8 a week in each instance, which was held in trust until such time as the court ordered judgment, but by so doing they prevented the creditor from continuing in employment and thereby minimized their possibility of collecting on the accounts due. The industry employing the man assumed that the personnel of their establishment would be put to an inconvenience regularly as a result of the attachments and, without giving sufficient thought to the handicaps the man was under as the result of unemployment, were willing to take it for granted that he was of the type who did not pay his bills, and therefore the best thing to do would be to discharge him. The division has consistently recommended an amendment to our present laws regarding attachment of wages, one of which would increase exemption on attachments for necessities to \$20 and the other to prevent attachments prior to court judgment.

The division investigates the circumstances of all such cases brought to our attention and has, when the case warrants, been able to convince the creditor of the honest intention of the person owing him money and, in addition, arranged for regular weekly payments to reduce the amounts then owed. We have also been able to convince employers that the owing of money for necessities after having been out of work for a long period is only natural and that if a person is given an opportunity for continued employment it would obviate further attachments.

Governmental authorities in cities and towns of the commonwealth could be of great assistance in minimizing unnecessary hardship during the period of present emergency by organizing local legal aid bureaus in their respective communities, the personnel of which could serve as arbiters in cases of this type. We are confident that numberless attorneys in each community would willingly give their time and knowledge to correct abuses that have resulted in the elimination of potential producers by drastic process of law.

The division recommends that during the period of present emergency a more thorough investigation be made of persons involved in cases similar to the one outlined above, and that attachments be made only after persons owing money appear to be arbitrary or have definitely refused to pay amounts due.

Cost of Living Index

The monthly compilation and publication of the "cost of living index" has been continued by the division. The demand for this index, together with comparative figures and other information relative to purchasing power of the dollar and living costs, has required the application of much additional time to this phase of the division's activities. It is evident that a great deal of the extra information was required for use in connection with wage disputes and readjustments; therefore, the division has endeavored to supply detailed reports relative to the application of such data in order that no injustice would result to any of the parties concerned.

The "cost of living index" is furnished monthly to a mailing list of over 250, which includes colleges; libraries; hospitals; financial, labor, industrial and welfare organizations; national, state, and municipal government agencies, and individuals. Some idea of the value of this index is shown by requests for this information, which are received from points throughout the United States.

Fuel

Because of circumstances over which this division has no direct control, the fuel bill of our consumers has not been reduced commensurate with the reduction of other commodities and, although our local anthracite distributors have not been the material beneficiaries of the continued high prices, it is our contention that they are indirectly responsible for their continuance. The comparative figures for the last two years, enumerated below, are the result of surveys conducted by the division to determine the relative importance of various fuels used in house heating.

	1929-1930	1930-1931
Anthracite — Domestic sizes	4,703,000 net tons	4,183,000 net tons
Buckwheat sizes	160,000 " "	175,000 " "
Bituminous coal	500,000 " "	800,000 " "
Coke	640,000 " "	895,000 " "
Briquets	190,000 " "	150,000 " "
Oil	100,000,000 gallons	140,000,000 gallons
Gas installations	4,344	5,049

It will be observed that there has been a substantial reduction in the consumption of domestic anthracite which, up to a very few years ago, was the only fuel in common use for house heating purposes.

The anthracite dealers are bemoaning the fact that consumers have turned to substitutes but, thus far, have done nothing collectively to rectify this condition. Modern progress has provided efficient substitutes at a lower cost to the consumer, although it is our opinion that the prices for the majority of these substitutes are now based on the prices charged for anthracite coal. It is hoped that in the near future these prices will become disassociated from alternatives and provided on a fair profit basis. It will be noted that there has been a tremendous increase in the use of foreign anthracite, a fact which is giving many of our local dealers concern and has caused much dissatisfaction in our sister state of Pennsylvania, which up to a few years ago had a monopoly on anthracite in this market.

Massachusetts Importations of Foreign Fuels — Net Tons

	<i>Anthracite</i>	<i>Briquets</i>
1927	63,137	55,044
1928	307,796	69,618
1929	321,975	77,733
1930	390,645	57,547
1931	412,526	53,540

The citizens of our commonwealth have much in common with those of Pennsylvania, and it is distressing that high prices have more or less prohibited a condition of reciprocity. Officially, Pennsylvania has demonstrated their desire to cooperate in the rehabilitation of this industry, the solution of which the division has interpreted to be within that state.

With the exception of special concessions procured from independent companies, most of our dealers have operated on a gross margin of \$3.18 per ton, which cannot be considered excessive or exorbitant. Our criticism of local dealers is based on their failure to seriously protest conditions that have resulted in such a personal loss to them, which leads us to believe that there is an element of fear connected with the industry as a result of interlocking monopolies.

One of the principal bones of contention is the fixed charge for transportation, which amounts to \$3.82 per net ton from the mines to Boston and varying amounts to other communities within the commonwealth. During the past year, the division hoped to be somewhat instrumental in bringing about a reduction of these rates. We were visited by a Mr. Walter Young who, from all outward appearances and from information that we were able to obtain about him, was sincerely interested in bringing about a reduction. We conferred with him on several occasions concerning statistics that would substantiate an application for a reduction in freight rates. He presented a petition to the Interstate Commerce Commission requesting a reduction of \$1.00 per ton. It was later learned that he personally solicited the trade for contributions for the purpose of bearing the necessary expenses connected with such a petition. He was apparently unsuccessful in his request for contributions, and when the hearing was called in Boston, Mr. Young was conveniently absent and the petition was dismissed. The division meets many individuals who desire to obtain money by their wits instead of their industry; this is but one of such cases that have come to our attention. However, if the organized coal industry, fully conversant with the handicaps under which it operates because of this exorbitant transportation charge, is content to allow a continued reduction in the use of domestic anthracite because of its failure to take a definite action to relieve this condition, it has no one to blame but itself.

The miners of Pennsylvania are operating under a five-year agreement, which establishes a rate of wage for the number of hours a day worked but does not assure them of steady employment. This is governed by the demand for coal; therefore, it is apparent that continued reduction in the use of this fuel is going to affect the earnings of these workers. During the past year they have worked on an average of two weeks out of each month.

The old "company anthracite circular price", which is the wholesale price of coal at the mines, has been reduced 20 cents during the past year. The retail price in Boston and vicinity has been reduced from \$1.00 to \$1.25; therefore, the real solution of further price reductions is in the hands of the Pennsylvania operators, and it is recommended that this be done either voluntarily or through the concerted demands of our Massachusetts dealers. Economic conditions and the moderate temperatures during this winter have had some effect on the use of anthracite coal, but competition with other fuels is the principal reason for the loss of this business. With the exception of the coal strike years of 1902, 1922 and 1925, production of anthracite coal during the last year is the lowest in the present century. Like in all other commodities, the ultimate dictator is the consumer. He is going to heat his home as economically as possible, having in mind also the efficiency of the fuel used. Consumption of fuel oil, for example, increased 40,000,000 gallons during the year. Oil installations have been made in what was formerly termed coal ranges on an average of 300 a week for the past six months, the expense of which indicates that anthracite will never replace this service. There were over 800 new gas installations.

A service plan was recently instituted by a local concern by which stokers were installed without charge upon agreement of the consumer to purchase bituminous coal for a period of three years at regular anthracite prices, at the end of which time the stoker becomes the property of the home owner and market prices will be charged for bituminous coal.

The use of coke has increased regularly for the past seven years to such an extent that what was formerly a by-product and a drug on the market is now a fuel in demand and manufactured specifically for resale. It is the opinion of this division that retail prices charged for coke are too high and are based presumably upon the market prices for anthracite. Although in public utilities companies high charges in this respect would be reflected in a reduction of gas rates, this method is not satisfactory to the consumer. Foreign interests are conversant with this situation

and are importing coke into the Boston area at prices that are bound to necessitate a reduction in the price of coke in the very near future.

The division issued a pamphlet sometime ago on the economic use of fuel in heating the home. Some kind of efficient fuel will always be necessary and it is incumbent upon each branch of this industry, as a matter of sound business policy, to reduce prices immediately and in line with the reduced earning power of our citizens. To our citizens, we urge a continued interest in this element of their family budget by purchasing fuel during the seasons of the year that they can do so most economically. Press dispatches issued from time to time by this Division will indicate our judgment in this respect.

Credit Policy

The division does not condone the present credit policy of many concerns who resort to the guillibility of the public to attract people to their stores through the advertising of merchandise on the basis of nothing down and pay at your convenience. Such methods have been largely responsible for breaking down the economic structure and have resulted in unwarranted hardship. Although the solution of this problem is in the hands of the purchasing public, the retailers have a moral obligation to the community, which is just as important as the enthusiastic desire for sales volume. A sales policy should be adopted which would require a thorough investigation of the purchaser's prospective ability to pay according to the terms outlined in the contract. Resorting to repossession of such articles after the purchaser has paid in a substantial amount and finds that he no longer can meet payments is unsatisfactory and could be avoided if the retailers assumed their share of the responsibility.

During the past year the division has been impressed with the seriousness of the present credit policy by the number of complaints made to us, investigation of which have brought to our attention the agencies implicated. The private collection agency has been utilized extensively for the collection of unpaid bills. Debtor and creditor alike have criticized the methods employed and the charges made for such collection. In the first instance, the collection agency is impersonal and disregards all ethics of decency in an endeavor to collect, regardless of the creditor's ability to pay.

While the circumstances are not exactly similar, the merchant or client of the collection agency has on many occasions had more difficulty collecting from the collection agency than they would have had from the customer. These agencies seem to work on a cost plus basis, which, in many instances, has resulted in the merchant actually owing the agency money in excess of the amounts collected. For example: one grocery concern turned over several accounts aggregating \$215. After a lapse of three months, a report of the amounts collected was demanded. The collection agency submitted an account as follows: "Money to be collected \$215. Amount collected \$56. Commission \$19.60. Service fee \$15. It would naturally be assumed the client would receive the difference between the commission plus service fee on the amount collected, amounting to \$21.60, but, on the contrary, the collection bureau charged a commission of \$34 additional or a total fee of \$90, which is the amount they would have received as commission had they collected the full amount of the account entrusted to them; therefore, instead of any money, a bill for \$34 was received, representing the amount in excess of the \$56 already applied from receipts.

Credit protection is essential and must be maintained, but the division contends, in the absence of regulatory legislation, that more human and intelligent methods should be employed, the operation of which will eliminate the professional strong-arm methods of collection agencies. In this connection, attention is also called to the abuses of power exercised by constables throughout the commonwealth, many of whom have resorted to intimidating tactics in collecting from people who intend to pay their just debts, but because of conditions have needed a guide or counsel rather than the demand of an unsympathetic visitor who demands full payment of a bill, plus excessive costs under the threat of arrest and jail sentence if they fail to pay.

The division has no desire to encroach upon the prerogatives of appointing

authorities, but it is our opinion that an appointive procedure should be adopted which would place the responsibility of securing an appointment upon the ability of the applicant to present satisfactory evidence of his integrity and character. In this connection, we would recommend a policy similar to that adopted by His Excellency, the Governor, in the appointment of notaries public, which necessitates the interested individual filing an application upon which is set forth several pertinent facts concerning himself, the reason for desiring such appointment, and requiring the endorsement of five reputable citizens of the community, one of whom must be an attorney. The application for constable should be filed at the office of the appointing authority which in turn should be referred to the chief of police for investigation and report. If this report be favorable, the appointing authority would then feel free to make such an appointment with some degree of confidence.

Constables are public officers and as such should deal courteously with the people with whom they have business dealings. This preliminary investigation before an appointment is available will eliminate many of our present constables, who seem to forget that we are living in the twentieth century; it would open up a productive field for intelligent, respectable gentlemen who could accomplish more for their clients as a result of their ability to meet people in a friendly and sympathetic manner.

The division feels constrained to elaborate upon this phase of everyday life upon the assumption that to intelligently analyze the cost of living, one must look upon it from all of its phases. The initial cost of a commodity can only be classified as such, if the transaction is for cash. Our compilations are made on a cash purchase basis, but we are thoroughly conversant with the extra cost entailed in credit procedure and the various elements involved in the collection of such accounts. It, therefore becomes incumbent upon this division to enumerate some of the typical cases that have been called to our attention and to inscribe them for public perusal in the hope that consumers, in the first instance, will purchase only those commodities which they are sure they can pay for and, secondly, that merchandisers create a credit structure that would have a tendency to minimize the necessity of employing costly and unfriendly methods of collection.

TREND OF LIVING COSTS

The trend of living costs in Massachusetts has been a matter of much interest during the last year and the demand for the monthly index and other information has materially increased. In 1931, after considerable study and investigation, the allocation of weights applied to the major sections of the budget in this weighted index were changed to more correctly conform with present requirements.

Changes in living standards and substitution of items have not been considered in the construction of this index as to do so would impair its principal value, that of comparison. The index, therefore, does not represent the actual cost of living but is, rather, a barometer of price trends of certain important commodities and services which go to make up the living costs of the average family.

The combined index for Massachusetts dropped during 1931 from 148.6 in January to 137.5 in November, a decrease of 7.5 per cent, with lower figures being noted for all major sections of the budget.

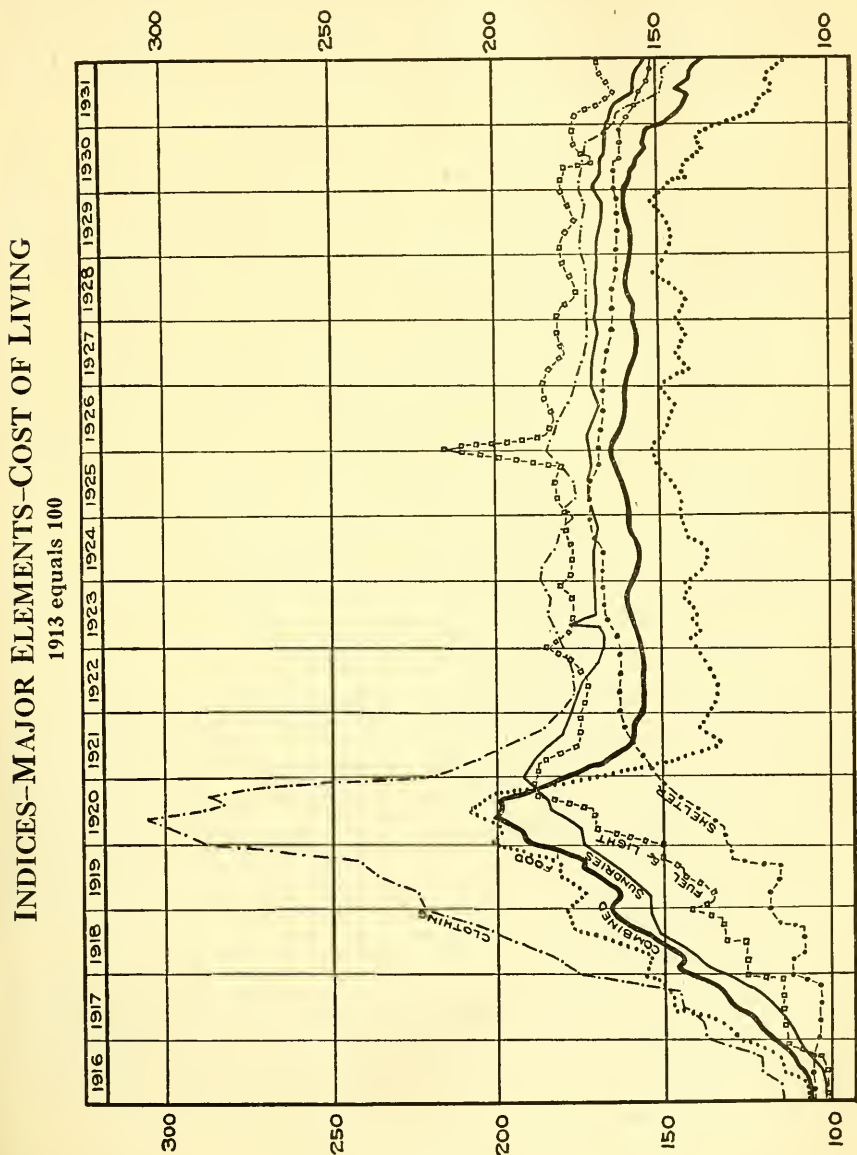
Comparative figures by months for 1930 and 1931 are given below:

Cost of Living Index — 1913 Equals 100

<i>Month</i>	<i>1930</i>	<i>1931</i>	<i>Month</i>	<i>1930</i>	<i>1931</i>
January . . .	159.4	148.6	July . . .	154.2	140.5
February . . .	158.9	143.9	August . . .	153.7	140.4
March . . .	157.0	143.3	September . . .	153.9	140.7
April . . .	157.1	141.5	October . . .	153.4	139.3
May . . .	156.4	141.1	November . . .	151.2	137.5
June . . .	155.0	140.2	December . . .	149.9	

The best way to visualize these figures is to transpose them into currency, i.e., \$137.50 was required in November, 1931, to purchase the same amount of commodities and services as cost \$100 in 1913.

While the dollar purchasing power has been materially increased during the past two years through lower commodity prices and has been the basis for widespread wage reductions, it should be borne in mind that the average family's income has also been greatly reduced by unemployment. In thousands of cases the income has been completely cut off and whole families are dependent upon public welfare assistance, the allowance for which is governed by prevailing commodity prices.



The division believes the present conditions cannot be alleviated while so many of our people are only provided with the means to purchase bare necessities and while the present uncertainty exists in the minds of those who are employed regarding their immediate future. Business and industry backed by capital must assume the burden of providing employment for those who are ready and willing to sell their services; otherwise, the increasing number dependent upon income raised by direct taxation will become prohibitive.

The period of easy credit preceding the present employment depression is largely responsible for the serious predicament of many families whose incomes have been either reduced or discontinued. Prospective future incomes were mortgaged to the limit to maintain ambitious living standards and these families in many instances are now faced with the possibility of loss of the goods purchased, together with their equity and must make a new start with the return of normal conditions. Firms should, therefore, endeavor to effect new agreements for payment of these bills, which will not cause hardship to the family concerned.

COMPARATIVE COST OF LIVING

The division, while directly concerned with the cost of living in Massachusetts, has for comparative purposes examined and studied matters pertaining to living costs in other states and countries. Figures compiled by the Federal Bureau of Labor indicate that Massachusetts has overcome its former cost of living handicap and is now lower than many other sections of the country.

The increase in the cost of living in December, 1931, over the 1914 base, for five large industrial cities located in different states, is given below:

	Food	Clothing	Rent	Fuel and Light	House Furnishings	Miscellaneous	All Items
BOSTON	12.8	58.0	38.4	86.0	89.9	91.3	44.1
PHILADELPHIA	17.0	42.0	40.3	91.7	54.1	117.6	50.5
CLEVELAND	4.1	36.8	41.0	159.5	58.3	119.0	50.0
NEW YORK	14.4	56.5	58.4	90.4	52.3	120.6	52.0

It is not practicable to use these figures to compare the cost of living between cities, as local conditions and base prices probably differ in each locality: they are, however, a good barometer of price changes in individual cities.

ELEMENTS OF THE BUDGET

Food

Allowance for food in the typical family budget used by this division to record the trend of living costs represents 37.6 per cent of the total budget expenditures. While food requirements are relatively staple, expenditures for this item vary according to the size, health, and occupation of the family and the amount of income available for household maintenance. Increased income does not necessarily mean increased food expenditures, as people who are well-nourished do not eat more food because additional money is made available. Studies of the division indicate, however, that in this respect a greater variety of more expensive items may be included in the market basket. Decreased income, on the other hand, results in a larger percentage being spent for food.

The food index for Massachusetts is based on retail prices of thirty-seven staple food commodities collected monthly from various chain and service stores throughout the commonwealth, averaged and combined in a weight table to recognize the varying importance of each item in the diet. During the past year the food index decreased from 130.8 in December, 1930, to 111.6, in November, 1931, a drop of 14.7 per cent during the 11 months period. The approximate division of the food dollar in 1913 and November, 1931, is given below:

(1)	(2)	(3)	(4)	
30¢	22¢	13¢	35¢	1913=\$1.00

(1)	(2)	(3)	(4)	
36¢	25¢	12¢	39¢	November, 1931=\$1.12

(1) Combined meats.

(3) Milk, butter, cheese, eggs.

(2) Flour, corn meal, bread, potatoes

(4) Other food items

A decrease of about 16 per cent was noted in the meat section of the budget, lower prices being quoted for all types of meat cuts. Prices of pork products in November were below the 1913 level.

The index for dairy and poultry products considered collectively for November, 1931, was about 9½ per cent below the December, 1930, figure with prices of butter and eggs being only slightly higher than in 1913.

A combination of flour, bread, corn meal and potatoes, which are grouped under one heading for the purpose of division of the food dollar showed a decrease of approximately 26 per cent during the year. The prices of all these items in November were below the 1913 base prices. A 40 per cent decrease was noted in the price of potatoes between December, 1930 and November, 1931.

The combined index for other foods dropped 11.8 per cent during the year, from 124.6 to 109.9. Decreases in prices of some items included in this section did not keep pace with those included in the other three major food divisions.

Comparative monthly index numbers of the food section of the budget for 1930 and 1931 are given below; 1913 equals 100:

Month	1930	1931	Month	1930	1931
January . . .	146.4	128.5	July . . .	137.6	115.7
February . . .	145.8	121.3	August . . .	136.6	117.0
March . . .	141.9	120.9	September . . .	137.2	117.4
April . . .	142.1	118.9	October . . .	137.0	115.1
May . . .	141.7	115.9	November . . .	132.9	111.6
June . . .	139.3	115.0	December . . .	130.8	

It will be noted from the above figures that with the exception of April and September, 1930, and July, August and September, 1931, decreases have occurred each month during the last two years and that the index dropped approximately 24 per cent during this period.

The deflation in food prices during the present period of depression has been more violent than in the prices of manufactured necessities and has resulted in curtailed purchasing power of the producer of food supplies. This has undoubtedly had a serious effect on other lines of business and may be considered indirectly responsible for curtailment of industrial operations.

Food commodities, generally, are of seasonal production, and must be properly stored for distribution throughout the year. The farmer, lacking the means and facilities for this important storage function, must find an immediate purchaser for his crops and is, therefore, largely prevented from sharing in the profits of our highly speculative process of distribution. It is the opinion of the division that simplified methods of distribution through sound cooperative organizations would result in the producer receiving a larger share in the food consumers' dollar.

Mass distribution of chain store organizations made possible by conveniently located warehouses and cold storage plants has redounded to the benefit of the consumer by way of lower prices for staple food products. The farmer should also benefit by this method of lower distribution charges; especially in New England where his products are not subject to high cost transportation rates.

Although the actual amounts expended for food in Massachusetts are not available, the division has taken the population as indicated by the United States

Census and apportioned it by ages to determine minimum calorie requirements, from which it is estimated that the food bill for Massachusetts consumers in 1930 was approximately \$700,000,000. During the past year there has been a 15 per cent reduction in the cost of food, resulting in a saving to Massachusetts consumers of approximately \$105,000,000. There has practically been a complete reorganization of the merchandising structure during the past ten years through which the consumer has been the material beneficiary. Methods of purchasing have been changed along with the changes in living standards. Very few of our housewives purchase in bulk, and preserving of fresh fruits and vegetables in the home has become uneconomical.

Merchandising of food has become a science with experts assigned to the various phases. Statistics furnished by the state department of public health show that cold storage is now used distinctly as a health protection rather than a facility for hoarding for speculative purposes. The ability to estimate the demand for home consumption has been one of the principal factors in the reduction of food prices. Massachusetts is dependent upon sources outside the commonwealth for over 85 per cent of the food consumed; therefore, it is essential that the channels through which such food must pass before arriving in the household must be efficiently and intelligently organized.

Some adverse comment has been made regarding the increased activities of chain store outlets, although none of this criticism has come from persons directly engaged in the retail trade. There is not the slightest danger for the present, at least, of the chain stores obtaining a monopoly through which prices might be established that would be prohibitive and reactionary. In the first instance, the chains, of which there are many in number, will prevent this by competition with one another and, secondly, there will always be a place in the community for the independent merchant whose facilities offer a greater service and convenience to the consumer. If mass purchasing, local warehouse facilities and mass distribution reflect in a saving to the people of this commonwealth, this division stands firmly behind such a method.

In cost of living surveys conducted throughout the commonwealth, our investigators have made it a point to inquire from independent dealers what effect chain store merchandising has had on their business, and, except in cases where through conversation it was determined that the retailer was not equipped to cope with modern methods of merchandising, they generally agreed that this type of competition had been beneficial. In fact, a number of grocers have taken courses in retailing to keep abreast with the present efficient distribution and sales methods.

Housewives do not sacrifice quality for price, but the fact that they have asserted themselves in the past few years by purchasing discriminately at stores that offer the most for their money stimulated these outlets to greater efforts.

The division has consistently criticized and condemned attempts at price fixing through legislation, whether it be through the presumably innocent method of establishing a prohibitive tax on chain stores or the legalizing of price fixing, which is being attempted through legislation known as the Capper Kelley Bill, now pending in Congress. This bill, in the first instance, would serve as the opening wedge for breaking down our anti-trust law, and is so drastic in scope that within a few years our food supply and the prices charged therefor would be in the hands of a very small group. Although prices have receded almost 100 per cent from the peak of 1920, there has been very little reduction in staple commodities in common use, commonly known as "nationally advertised products." They are too far removed from the heart of the community to react beneficially to the consumer. On the contrary, the chain store outlets have become part of our community life; their warehouses are in effect a distributing center from which food is supplied after the demands of each community have been ascertained. The method of delivering food to individual stores for home consumption minimizes the necessity for large storage space in the store, eliminates waste which was formerly charged to the consumer and provides a quick, although small profit through sales volume.

The present ratio of so-called "independent" grocers as against chain stores is three to one, which ratio will be maintained without the assistance of chain store taxes. The proponents assert that such legislation is for the purpose of eliminating

the competitive arrangement under which we are now operating so beneficially to all concerned and admit that such tax would be passed on to the consumers through increased prices of food commodities. There is a place in the community for every type of merchant, providing such merchant has something more behind him than the ambition to be in business. The community is under no obligation, moral or otherwise, to perpetuate a person or persons in business who have not sufficiently prepared themselves to cope with modern methods and demands.

Milk and Farm Products

Less than 4 per cent of the population of Massachusetts is engaged in agricultural pursuits, which should be an assurance in itself that the total production from Massachusetts farms should be disposed of in local markets at prices that would pay the farmer a fair profit. In many respects, the farmer has become the beneficiary of the evolution in merchandising, for in very few instances do we observe the trucks and wagons driving to the metropolitan centers in the early hours of the morning for the purpose of disposing of produce to a middleman at prices which, in former years, hardly paid for the trucking. The increased use of automobiles has brought the consumer to the farm for direct purchase, which is made on the basis of listed retail prices. Another outlet is the delivery direct to the stores for resale which, because of the elimination of the middleman, allows the farmer an additional profit.

The production of milk is a phase of agriculture which has given this division some concern and to which we have given considerable study for the purpose of bringing about a meeting of the minds of all parties concerned. We have determined that in this connection the farmer and the consumer alike are inclined to be fair about milk prices, but the vicious machinery set up for the distribution of milk has resulted in a price war with farmers fighting one another. There is not any good reason why every quart of milk and cream produced in Massachusetts should not be sold to Massachusetts consumers at a price commensurate with the price of production. Letters we have received from consumers indicate that they are willing to pay the farmer a fair price but we cannot reconcile the system of selling milk on a fluid milk surplus basis, which is not understood either by the farmer or the consumer.

One glaring example of an attempt to charge an excessive price for milk was called to our attention in July, at which time a 1 cent increase was announced, notwithstanding the fact that excellent pasturage was available and the farmer's overhead reduced to a minimum; also that at the time there existed a 35 per cent surplus which meant that a very small portion of this increase would be given to the farmer. The farmers have been misled into believing that the consumer is hostile; nothing could be further from the truth. Hostility prevails from within, and conditions will not be remedied until the organized farmer demands more specific explanations from the agencies who deduct fines, rebates and surplus reductions from their shipments.

His Excellency, the Governor, has appointed a Massachusetts member to a New England milk stabilization committee. The problem they have before them is comprehensive but not complicated. Until this committee reports, this division declines further comment other than to say that an unprejudiced and impartial study of this kind should instill the farmer with renewed confidence and assure the consumer of reasonable year round prices for milk.

SHELTER

It has been difficult in a great many cases to adhere to the 21.8 per cent of the typical family budget which has been allotted by this division for shelter, owing to the tremendous evolution that has been brought about by economic conditions. With the exception of very isolated instances and a general theory advanced by the casual observer, residential property owners have not been the material beneficiaries of this ownership during the past year. Therefore, the division has been reluctant to publicly urge a substantial reduction in rentals, as the economic law of supply and demand has operated most forcibly.

We have in the past denounced many landlords because of their unwillingness to accept a reasonable profit in return for their investment. We are equally pleased at this time to commend the thousands of home owners in this commonwealth who

have allowed tenants to remain in their property for periods ranging from one to fifteen months without paying any rent.

When conditions of adversity exist, the human instinct of "live and let live" is bound to be prevalent. During the past year, although rent reductions have not been general and do not correspond to the average reduction of other commodities, the division has found many instances where tenants applying to the owner have been able to secure a reduction. Some places in the densely populated areas have reduced rentals as much as 25 per cent, although the average reduction for the commonwealth was approximately 10 per cent.

It must be borne in mind that the owner of property, whether it be a single house, two-family or a multiple dwelling, is responsible for and must pay certain fixed charges, none of which have been reduced during the past year; in fact, taxes in most every instance have been increased.

The deflated market has created a problem for all parties concerned, which is not easy to adjust with the changes caused by the inflated market of the past ten years and the increased earning power of tenants, with the resultant improvement in the standard of living. Most vacancies are in property similar to the type they now occupy and the only inducement offered in these instances is possibly a slight reduction from the amount now being paid because of the owner's desire to derive some income from what would ordinarily be a vacant apartment. The properties that were left during the boom period have since been demolished or are occupied by families who never materially benefited by a rising market.

The casual observer is disillusioned by the number of existing vacancies and wonders whether there ever will come a time when further building will be necessary. It is the contention of this division that immediate building is necessary and that present vacancies are caused primarily because of the necessity of tenants doubling up. Our investigators have found as many as four families living in one apartment and the furniture of three of these families either in storage or in the basement of the home. The revival of business will change this condition over night; the empty apartments will be usurped and there will be a demand for new construction.

There are two factors responsible for the present condition of demoralization, conditions surrounding which should be revamped to prevent a recurrence. First is the speculator, a necessary adjunct to community development, handicapped on one hand by exorbitant financing costs; stimulated on the other by the desire to procure a profit that would result in uneconomic purchases by the home owner on the basis of estimated income, which could only be temporarily obtained at best.

Real estate represents over one-half of the wealth of the country, therefore, without question it becomes our most stable commodity. Why then should it be necessary to resort to commissions, bonuses and high rates of interest to procure a legitimate loan, either construction or permanent? It is only natural that the speculator or builder should pass on to the purchaser all of these costs that he has been encumbered with. Banks should consider themselves a part of the community in which they operate and should make available, up to within the limit of the banking laws, construction money at reasonable rates of interest, based on intelligent appraisals of actual value of the project to be undertaken. Most banks derive the majority of their deposits from the small investors within the community, and we cannot intelligently reconcile the refusal of a loan to a small home owner when at the same time loans from \$100,000 to \$500,000 are made on speculative activities in a community where the appraisers for the bank are not sufficiently familiar with local conditions to properly analyze future stability.

This division strongly urges banks to participate in community development. They should establish a policy by which builders can appear and present projects on their merit, unencumbered by outside influences and supported by intelligent appraisal of present costs of land, material and labor. Money should be loaned at rates of interest commensurate with the mortgage rates charged for existing mortgages on completed construction. If this policy were followed, the General Court could justly amend the law to allow loans up to 70 per cent of the cost of a project and increase the amount allowed to be loaned up to 80 per cent of the deposits.

Let us take the case of the average landlord during the past year. A great number of home owners purchased during the boom period on the basis of estimated income,

plus the desire to own one's own home. Ordinarily, the property is encumbered by two mortgages, the first held by the bank and the second held by the builder or former owner. The remainder of the original cost represented the life-time savings of the purchaser. Economic conditions resulted in either the loss of the tenant or a reduction of rental to an amount the tenant could afford to pay, which immediately reestablished the value of the property for resale, wiped out the small equity and placed the owner in jeopardy of losing the property because of his inability to meet fixed charges. The second mortgage is generally written for a limited period, necessitating payments on the principal, a definite amount quarterly and a proviso that it shall all be paid within a given period, ranging from two to five years. If the second mortgage is held by a private individual other than the former owner, high rates of interest are charged and a bonus is deducted for accepting the mortgage. It would therefore appear that the banks holding the first mortgage should, in so far as it is financially possible, keep alive this natural and human desire to own one's own home and at the same time observe a moral responsibility to the community. In most instances, particularly in property purchased within the last few years, home owners are not in a position to pay principal payments on first mortgages, therefore, except in instances where the original appraisals were ridiculously high, it is recommended that demands for the present be limited to interest payments.

During the shortage of apartments, property changed ownership several times in the course of a very few years and rental demands were made commensurate with the price paid for the property. Most of this property has had to give way to newer and more modern construction, with the resultant loss to the last purchaser. This is a condition which, of course, cannot be prevented. Tenants naturally desire to procure the best possible accommodations in return for the rent paid.

It is found that a great deal of this type of property has been returned to banks by foreclosure, and it is the recommendation of this division that such property be offered for sale through the regular sales outlets to the end that the property may be rehabilitated to rent at going rates. The money derived from the sale of this property could readily be applied to financing new construction or to satisfy the demand for first mortgages at up-to-date appraisal values.

Many instances have been called to the attention of the division where banks have refused to sell property which they have taken by foreclosure, notwithstanding the fact that amounts far in excess of the mortgage were offered, and although the law permits the holding of such property by banks, it appears to be contrary to the purposes for which such law was established.

The necessity for new building and the rehabilitation of all the older properties is of sufficient importance to repeat that the normal migration to cities and towns within a radius of 15 miles of a large industrial center demands additional housing facilities. Construction of multiple dwellings or what is commonly known as heated apartment buildings provides additional facilities for a growing population, and increased revenue through taxation for the communities in which such construction takes place. The construction of an apartment building at a cost of one million dollars would offset the construction by the municipality of a one million dollar school or the construction of a million dollars worth of streets, as the taxes received therefrom would pay the interest and principal on the bond issues of such projects. A substantial building program, particularly of this type, where the municipality is not put to any expense, should be encouraged. Although zoning is essential for the future protection of communities, the application of the zoning restriction should be guided by intelligent city planning rather than by manufactured neighborhood sentiment.

The division is not attempting to present a cure for all the ills resulting from an inflated market, which is now deflated to the condition of despair and pessimism. We have sufficient confidence in human nature to offer as our analysis from observation of conditions, a possible solution that will assist in readjustment.

Tenants naturally are going to live in property where they can procure the best facilities in return for the money paid for rent; therefore, there is but one solution: the builder of new apartments must provide the latest modern facilities and the owner of the older apartments must renovate and install modern equipment to meet the demand. The fact that a building is 15 years old does not necessarily

detract from its rental possibilities, providing the owners keep abreast of the times. Rent is a matter of competition and no matter what the price situation may be, the tenant is still attracted to the building with the latest equipment and appointment-with freshly decorated and attractive quarters. He demands all manner of concessions, but in these days he expects, nevertheless, constantly higher standards of finish and decoration, new inventions for his comfort and convenience and new service features; it, therefore, becomes incumbent upon the owners of older buildings to meet this competition by the necessary rehabilitation to satisfy the demand. Sand-blasting the exterior walls is often-times the means of retaining tenants and attracting new ones. The employment provided in new construction and the renovation of old property also puts the wheels in motion for productivity all along the line.

Relation of Tenant and Landlord

There are definite laws concerning the relation of tenant and landlord which have been consolidated in pamphlet form with explanations and are available at the office of this division.

At this particular time when there is so much unrest and general upheaval of standards of living and home conditions, it is apparent that better results would be obtained in the long run if there was a closer relationship between the owner of property and the tenant, both of whom should resort to the spirit of fair play rather than a strict adherence to their rights under the law. The division feels that a policy of efficient management and good will reacts more favorably to all parties concerned rather than a strict adherence to legal rights.

Owners have lost many good tenants as a result of a bridge game at which one of the participants, a new tenant in the apartment house that year, informs the others that she received a months' concession and that she is paying \$55 a month rent, which was \$10 a month less than the others were paying, notwithstanding the fact that they had been tenants for two and three years. Rates in multiple dwellings should be uniform. Very few vacancies exist in apartments where all tenants receive the same consideration.

In cases where death, a substantial reduction in income, or the loss of income as the result of unemployment occurs during the term of a lease, the owner should investigate each case individually and if the tenant's story is substantiated, the good will resulting from allowing them to move to quarters more within their means would more than offset the temporary loss of rent. Satisfied tenants are the best sales force an owner could ask for.

There are tenants who have no regard for the investment of the owner and although they have contracted to remain for a given period, plan to make all sorts of unnecessary complaints and criticisms for the purpose of obtaining a release from their obligations. Many tenants decide about the first of May or June that sufficient heat is not being furnished when, in fact, they are looking for an excuse to spend the summer at the beach or mountains at the expense of the owner. This type of tenant is undesirable and it is for the protection of the landlord in such cases that the laws are made so specific. The division makes these comparisons for the purpose of stabilizing a necessary commodity, and it is hoped that some good will result therefrom.

CLOTHING

The division has pointed out in previous reports that clothing is the most difficult item of the budget to standardize as climatic conditions, individual requirements and tastes, and changing styles all have a separate bearing on expenditures for wearing apparel. The clothing indices are, therefore, largely based on the so-called "sampling method" or on prices of staple goods entering into the make-up of clothing.

During 1931 the index of combined clothing dropped from 164.0 in December, 1930, to 145.8 in November, 1931, a decrease of about 11 per cent. The approximate division of the clothing dollar in 1913 and the amount required to purchase a similar quantity in November, 1931, is given below:

(1)	(2)	
51¢	49¢	1913=\$1.00

(1)	(2)	
72¢	74¢	November, 1931=\$1.46

(1) Men's clothing

(2) Women's clothing

Clothing prices show wide variation even within communities due to keen competition and difference in quality and workmanship in the manufactured garment. During the last year a definite downward trend has been noted in the prices of clothing in general, with extraordinary value in certain items being offered daily by the large stores. Consumers who have been able to take advantage of these opportunities have effected large savings on their clothing allowances.

Many large industrial plants for the manufacture of textiles in Massachusetts are practically at a stand-still while ready-made clothing is being purchased in increasing quantities, a situation brought about largely by importations of foreign goods and competition of southern mills having lower operating costs. It would appear that an excellent opportunity exists for the development of the manufacture of clothing on a large scale in Massachusetts. Such development would not only give employment to a large number of our idle workers but would result in increased activity in textile plants; if arrangements could be made between these two industries for the selling of cloth direct from the mill to local clothing manufacturers, it would do much to resurrect the business of clothing manufacture in this state.

FUEL AND LIGHT

The combined cost of coal, gas, kerosene, and electricity is given an allowance of 5 per cent of the total budget used by the division. During the past year the index for this combination, which dropped from 175.5 in December, 1930, to 168.7 in November, 1931, showed only a slight change when compared to decreases in items in other major sections of the budget.

The maintenance of high prices for items included in this section when prices of practically all other commodities have been materially reduced has been a matter of much concern to consumers and the division has been besieged with requests as to why the prices of these commodities and services remain at their present high level.

In this respect, it is pointed out anthracite, which is still the dominating fuel for Massachusetts, is mined outside the borders of this commonwealth and we are obliged to pay a price set by a highly organized monopoly if we elect to burn their product. In addition, rail transportation charges are set by the Interstate Commerce Commission and, therefore, become a fixed charge which must also be paid before the fuel reaches the yard of the local distributor. From this information, it appears that three-quarters of the present retail price of anthracite is governed by conditions outside the control of this commonwealth and that any reduction in retail prices must be borne by the dealers of Massachusetts unless the mine operators decide to make voluntary reductions.

The prices charged for other competitive fuels are usually based on the prevailing anthracite prices and for this reason the stove size of anthracite was selected to represent the item of fuel in the fuel and light section of the budget.

Prices for gas and electricity are subject to the approval of the state department of public utilities as these services are government regulated monopolies which require the extraordinary use of public property. The approximate division of the fuel and light dollar in 1913 and November, 1931, is given below:

(1)	(2)	(3)	(4)	
61¢	4¢	20¢	15¢	1913=\$1.00

(1)	(2)	(3)	(4)	
\$1.22	6¢	31¢	10¢	November, 1931=\$1.69

(1) Anthracite

(2) Kerosene

(3) Gas

(4) Electricity

This division and its predecessor have repeatedly taken the stand that price fixing by legislation is a dangerous procedure and we believe that high prices of commodities and services in this particular section, which in part at least are government controlled, clearly illustrates this point.

SUNDRIES

The sundries section includes expenditures for miscellaneous goods and services not included in other sections of the budget. These items satisfy a wide variety of desires, the combination of which is given an allowance of 22.8 per cent of the total budget.

The division uses the following list of articles developed by the National Industrial Conference Board, and prices are checked for application to Massachusetts:

- Carfares
- Medical care, drugs, toilet articles, etc.
- Furniture and household supplies.
- Recreation, theatres, etc.
- Reading material, stationery, telephone calls
- Dues and insurance
- Contributions to church and charity
- Tobacco
- Candy, soft drinks, etc.
- Ice

In connection with this section, items that would be considered essential by one family might be of minor importance in the household needs of another, but total expenditures in either case would probably be nearly equal.

In the twelve months ending November 30, 1931, the Sundries index dropped from 165.0 to 156.0, with decreases being noted in nearly all items included in this section.

It will be noted that no allowance has been made in the typical budget for the item of savings other than that of insurance, a large share of which might properly be termed as savings. Some families are able to save regularly, while others make no effort to set up a reserve against old age or adversity. This division has consistently recommended setting aside a portion of the individual's earnings to meet such emergencies as have existed for the past two years. The fallacy of spending all earnings has brought about disastrous conditions among millions of our people, much of which could have been avoided had a small percentage of earnings been placed in a savings account.

The state bank commissioner's report shows that savings deposits in savings and cooperative banks and trust companies decreased \$12,000,000 during the year, from \$2,876,000,000 in 1930 to \$2,864,000,000 in 1931. This loss of deposits is hardly comparable with the reduction in income caused by unemployment. Although there have been isolated instances of lack of confidence in certain banks, the greater majority with assured incomes will continue to set aside a portion of their salaries for a rainy day. In this connection, we feel that banks themselves should have more confidence in human nature and instead of hoarding cash in their vaults in anticipation of a demand from depositors, more beneficial results could be obtained in the respective communities served by making short-term loans either to the city or town in which they operate or to individuals or corporations in connection with legitimate enterprises. We repeat again that depositors will continue to have confidence in banks as long as banks have confidence in themselves.

The division strongly urges the use of a budget in connection with family expenditures as a means of promoting conservative savings.

PETROLEUM PRODUCTS

Gasoline

During 1931 the total consumption of gasoline in Massachusetts amounted to about 569,000,000 gallons or an average consumption of 563 gallons per registered car compared to 528 gallons per car in 1930. The revenue derived from the tax

levied on gasoline sales, which was increased from 2 cents to 3 cents per gallon, effective May 1, 1931, was \$15,573,814.58 compared to \$10,721,664.15 in 1930. These figures were furnished by the state department of corporations and taxation.

Posted retail prices were slightly lower than during the preceding year, with special prices by most independent stations, which ranged from 7 to 9 gallons for \$1.00. These prices were met in many instances by company owned stations of large distributors. In general, the motorist was able to purchase gasoline at from 2 cents to 5 cents below the posted price.

The division received comparatively few complaints in 1931 relative to the prices charged for motor fuel. In all cases taken up, the cooperation of distributing companies was received and resulted in satisfactory adjustment of individual situations.

Complaints were received in July from the Cape Cod chamber of commerce, boards of selectmen and representatives of the General Court from that district regarding a price differential which existed between certain towns on the Cape and nearby cities. These higher prices in a territory which caters to summer visitors and vacationists were a matter of much concern to those making the complaints, as it appeared that local distributors were taking advantage of summer residents in this popular section of the commonwealth.

While many of the large oil companies supplying that district reported to the division that the existing differential was due to the element of competition, the complaint had the desired result as price adjustments were made within a few days which were evidently satisfactory to the complainants.

A decrease was noted from the previous year in both the supply and demand of gasoline in the United States. Indicated production and consumption during the last seven years as reported by the United States department of commerce are shown in the following table:

Gasoline — United States (In barrels of 42 gallons)

	<i>Production Plus Imports</i>	<i>Domestic Demand Plus Exports</i>
1925	261,897,000	253,809,000
1926	299,488,000	299,825,000
1927	335,437,000	341,144,000
1928	381,479,000	381,729,000
1929	443,109,000	434,060,000
1930	457,655,000	460,375,000
1931	451,509,000	449,145,000

It is noted from the above table that the decrease recorded in 1931 was the first in a long period of years; in fact, this industry has enjoyed an almost continual increase in the demands for its products.

A slight decrease occurred in the number of motor vehicles registered in Massachusetts as compared to the previous year. The total registration, including trucks, busses, and motorcycles over a period of years is given below:

<i>Year</i>	<i>Total Registration</i>	<i>Year</i>	<i>Total Registration</i>
1921	360,732	1927	828,352
1922	449,838	1928	875,595
1923	482,645	1929	1,025,000
1924	672,315	1930	1,013,819
1925	764,338	1931	1,009,876
1926	826,224		

In connection with this decrease in registration during the past two years, which appears comparatively small in view of the present economic conditions, the normal increase for the last eight previous years should be considered. It is only fair to assume that under normal conditions a substantial increase would have been recorded.

Crude Oil

Crude oil prices for 35° to 35.9° gravity dropped from 92 cents per barrel in January, 1931, to 17 cents per barrel in July, due to a condition of over-production in general coupled with a flood of oil from the East Texas fields. Various methods were employed in different states for a curtailment of production with an apparent degree of success, as prices have slowly increased to a 75 cent per barrel level in November, 1931.

Indicated production and consumption of crude oil for the last seven years is shown in the following table:

Crude Oil — United States (In barrels of 42 gallons)

	<i>Production Plus Imports</i>	<i>Deliveries Plus Exports</i>
1925	817,857,000	603,099,000
1926	826,824,000	630,611,000
1927	959,512,000	662,008,000
1928	979,947,000	738,463,000
1929	1,084,518,000	793,041,000
1930	960,140,000	751,892,000
1931	897,525,000	748,063,000

NOTE: Does not include California consumption.

The above figures indicate that while over-production was a subject of much discussion and great fear was expressed regarding the future of the industry during the first half of 1931, total production for the year was actually below the 1930 figure.

A survey of oil used for heating purposes in Massachusetts is usually made at the end of the coal year. Therefore, the division is unable to accurately determine the increase in the use of this fuel during 1931. From reports received relative to the large number of oil burners installed in kitchen ranges during the year, it is only fair to assume that a substantial increase will be recorded in the use of fuel oil for domestic purposes. In 1931 furnace oil of 38° to 40° gravity sold for 8 cents per gallon compared to 9 cents per gallon during 1930. The price of 28° to 32° gravity light fuel oil at 6½ cents per gallon was also 1 cent per gallon below the price charged during the previous year.

The division has been called upon to furnish a large amount of information regarding receipts of foreign crude oil into New England over a period of years. This information is undoubtedly for use of both the proponents and opponents of the proposed tariff on crude oil which is now before the Congress of the United States.

CONCLUSIONS

The division has just completed the first full year of its existence. The machinery set up by the former Special Commission on the Necessaries of Life have proven invaluable, and in many respects, we have carried on the activities where they left off. Our expenditures for 1931 were approximately \$14,000. Although we are not going to assume the responsibility for the tremendous reduction in the cost of commodities during the past year, we are satisfied with the knowledge that substantial reductions were brought about through our activities. The consumers of our commonwealth have been benefited by direct reductions in the cost of commodities to the extent of about \$200,000,000.

Specific recommendations have been made throughout the report, and although it is not to be assumed that this division or any other governmental agency could cure all ills or satisfy all sentimental grievances, no complaint is considered too picayune for us to investigate. Our opinions on individual cases and specific investigations of commodities are based on facts.

Now is the time to take inventory. To the individual who is out of step, a little stocktaking might supply the necessary inspiration to apply himself. The same is true all along the line from the smallest business man to the largest industry. Human nature is prone to place responsibility for loss of business upon either the government or "the other fellow" when, as a matter of fact, a close check-up generally proves that responsibility belongs at home.

Economically, competition is a struggle of different interests for valuable things which we call wealth; if this wealth is further applied in a creative sense, it produces greater wealth, and so on an endless cycle, with the individual becoming the beneficiary of someone else's industry. We are not impressed with the desire of those who wish to become wealthy without industry by so-called "get-rich-quick" methods, and on every occasion called to our attention have stifled such endeavors either by a report to criminal authorities or by publicity.

To the best of our knowledge, Massachusetts is the only state sponsoring such a division, a fact which in itself supplies a stimulus for us to produce definite beneficial results.

Despite our geographical location far removed from the source of supply of most of the commodities used, the Massachusetts consumer can today purchase most commodities at lower prices than in other states. While we fully realize that each state of the Union is dependent upon other states for its existence, we assume it to be our duty, in cooperation with all of the elements concerned, to set an example for other states to follow.

Our efforts would be futile without the cooperation of the press which, on every occasion, has accepted the publicity of the division furnished and has, through editorial comment, assisted in developing an individual responsibility and desire among the people of the commonwealth to buy prudently and economically. The division incorporates its sincere appreciation of the press for its splendid cooperation.

Appreciation is also expressed to the Massachusetts Department of the American Legion, Boston Better Business Bureau, Boston Chamber of Commerce, New England Ice Cream Manufacturers Association, governmental agencies and bureaus, voluntary fuel correspondents and local merchants for their cooperation with us during the past year.

Appendix 1

COST OF LIVING CURVE

STATISTICAL METHOD AND TABLES OF PROPORTION AND PRICES

The division and its predecessor have used in the computation of the Massachusetts cost of living index the same percentages for the major sections of the budget as those used by the National Industrial Conference Board, until July of 1931. These weights, together with others which applied to many individual items of the budget, were changed in 1931 after much study and investigation, and the division believes that the new application of weights represents the relative importance of items and sections to a greater degree of accuracy.

The present allocation of weights for the major budget sections are as follows:

Food	37.6	Fuel and Light	5.0
Clothing	12.8	Sundries	22.8
Shelter	21.8		

In making an index of living costs, a list of representative articles in common use is first chosen. Having selected the list of articles on which the index is to be based, it is necessary to give varying importance to them in the total, according to the measure in which they are commonly used. Food represents a much larger expenditure than ice or fuel; and within the list of foods a 20 per cent increase in the price of meats is a much more serious matter than a hundred per cent increase in the price of pepper or salt. The proportions assigned to the various commodities are called weights or weightings, and an index so constructed as to recognize the varied importance of different articles is called a weighted index. The list of articles and proportionate weighting chosen by the division is given in detail in Tables 1 to 5, inclusive.

Having selected the list of commodities, some particular time must be chosen as a basis of comparison, and all prices at that time are called base prices, represented by 100 per cent in the scale. For the Massachusetts index, the calendar year 1913 was selected as a base because this gave a true pre-war picture, and because this is the base used in the widely quoted index of the Bureau of Labor and Statistics. Monthly

quotations have been secured before and after the basic period, and each quotation is divided by the basic quotation to give the per cent. Monthly quotations since 1910 have been used in the case of foods. Thus the basic, or 1913, quotation on flour was 91 cents per one-eighth barrel bag, and in November, 1931, the price was 85.4 cents, which, divided by the base, gave the percentage index on flour as 93.4 on the date mentioned. Each quotation is in turn divided by the base price, and a table of percentages is the result. A table is made for each commodity, and then the percentages are combined by the weighting previously referred to. A different selection of commodities and a different selection of weightings will cause the indices to be quite different. Each is a true presentation of certain facts; no index can present all facts. In its own studies the division has endeavored to choose not only the most necessary commodities, but also to combine them in proper weighted proportion, so that a fair presentation is made of Massachusetts conditions.

Some idea may be had of the magnitude of work involved in making an index when it is realized that over 400,000 mathematical computations were made in constructing the original index of living costs.

FOOD INDEX

The index of foods, which carries a weighting of 37.6 in the total, is a composite based upon the selling prices of thirty-seven articles of food. These foods in turn are assigned weights in accordance with their relative importance. The allocation of these weights follow:

Table 1. — Allocation of Commodity Weights in the Food Index

Fresh beef	1,605	Tea	187
Salt beef	242	Coffee	287
Fresh hog products	379	Sugar	518
Salt hog products	361	Molasses	45
Other meat	363	Flour and meal	480
Poultry	301	Bread	526
Fish	298	Rice	57
Eggs	570	Potatoes	457
Milk	788	Other vegetables	476
Butter	881	Fruit	253
Cheese	75	Vinegar, pickles and condiments	80
Lard	241	Other food	530
Total			10,000

Table 2. — List of Commodities in Combinations included in the Food Index

Fresh beef: Steak: sirloin steak, and rump steak. Roasts and stews: chuck roast, round beef.

(The above cuts are given equal weight in the item of fresh beef.)

Salt beef: Fancy brisket.

Fresh hog products: Fresh pork loins.

Salt hog products: Ham. Bacon. Salt pork.

(The above cuts are given equal weight in the item of salt hog products.)

Other meat: Lamb. Veal.

(Lamb is given a weighting of 2 and veal 1 in the item of other meat.)

Poultry: Fowl.

Fish: Salt cod. Fresh haddock.

(The above are given equal weight in the item of fish.)

Flour and meal: Wheat flour. Corn meal.

(Flour is given a weighting of 3 and corn meal 1 in the item of flour and meal.)

Other vegetables: Onions. Canned tomatoes. Canned peas. Canned corn.

(The above are given equal weights in the item of other vegetables.)

Fruit: Evaporated apples. Prunes.

(The above are given equal weights in the item of fruit.)

Other food: Dried beans. Oatmeal.

(Dried beans are given a weighting of 2 and oatmeal 1 in the item of other food.)

SHELTER INDEX

The index of shelter, which carries a weighting of 21.8, is based on rentals charged for many houses in many parts of the commonwealth. These ranged in 1910 from \$12 to \$32 per month, and in November, 1931, from \$20 to \$50 per month. The list includes single, two-family, and three-family houses, and middle-priced apartments, heated and unheated, but does not include mercantile or office buildings.

CLOTHING INDEX

The index of clothing, which carries a weighting of 12.8 in the total budget, is derived from quotations on the following articles. The weighting of the various articles of clothing, as combined in the clothing index, is also shown.

The standard blue serge has been used as the basis for quotations for men's outer garments. Overcoats have varied in weight and style, and it has been almost impossible to find a standard for quotation. Overcoating fabric prices of uniform weight have, however, advanced in the same ratio as blue serge prices and, therefore, the index of the serge suit cost, which is almost identical with the index serge fabric costs, has been used as a basis for the suit, overcoat and trousers items. For night garments the composite of cotton fabrics has been used, as all cheaper cotton fabrics have advanced in nearly the same ratio, and the quotation will therefore cover night garments made of either canton or domet flannels or long cloth. In the list of women's clothes the same index based upon blue serge has been used for the topcoat, suit and street dress. The items of nightgowns, slips, kimonos, waists, house dresses and aprons are combined, and the average index of cotton piece goods has been used.

Table 3. — Allocation of Weightings in the Clothing Index
Men's

Overcoats, suits, trousers	48	Shirts	7
Shoes	9	Collars	1
Hats	6	Underwear	3
Gloves	2	Night garments	3
Socks	5		
Total			84

Women's

Suits, topcoats, street dresses	42	Gloves	2
Underwear	4	Hosiery	7
Waists, kimono, house dresses, aprons, nightgowns, slips	10	Corsets	2
Shoes	8	Hats	5
Total			80

FUEL, HEAT AND LIGHT INDEX

The index for fuel, heat and light, which carries a weighting of 5.0, is based upon selling prices of coal and kerosene throughout the state, and upon the rates for gas and electricity in the cities of Boston, Springfield, Worcester, Lawrence, Lowell, New Bedford and Fall River.

The weightings assigned to these different commodities are based upon a study of family expenditures, and are gauged to cover conditions in wage-earning families throughout the state. The weightings are as follows:

Table 4. — Allocation of Weightings in the Fuel Index

Coal	61	Gas	20
Kerosene	4	Electricity	15
Total			100

SUNDRIES INDEX

For sundries, substantially the same list of commodities that is quoted in the report of the National Industrial Conference Board (research Report No. 22) has been used with the addition of ice. The list, together with weightings assigned to the different commodities, is as follows:

Table 5. — Allocation of Weightings in the Sundries Index

Ice	847	Tobacco, etc.	589
Carfare	1,056	Reading	934
Entertainment	902	House furnishings	1,834
Medicine	1,015	Organizations	879
Insurance	1,111	Candies, soft drinks, etc.	322
Church	511		
Total			10,000

It should be noted that no provision is made in the above classifications for savings other than insurance.

Table 6. — *Cost of Living Index Numbers by Elements*
1910

ELEMENTS	January	February	March	April	May	June	July	August	September	October	November	December
Food	94.8	94.7	95.9	95.5	94.9	95.3	96.4	96.9	97.3	96.7	96.5	92.9
Clothing	99.9	99.9	99.9	99.9	99.9	99.9	99.9	99.9	99.9	99.9	99.9	99.9
Shelter	91.0	91.0	91.0	91.0	91.0	91.0	91.0	91.0	91.0	91.0	91.0	91.0
Fuel and Light	99.0	99.0	99.0	92.6	92.6	92.6	94.1	94.1	96.3	95.7	95.7	95.7
Sundries	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Combined	96.1	96.1	96.6	96.1	95.8	96.0	96.5	96.7	97.0	96.7	96.6	95.1

1911

Food	95.2	94.5	93.5	91.5	91.6	91.5	94.2	95.4	97.9	98.9	98.4	98.1
Clothing	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Shelter	91.0	91.0	91.0	91.0	91.0	91.0	91.0	91.0	91.0	91.0	91.0	91.0
Fuel and Light	96.9	96.9	96.9	92.3	92.3	92.3	94.5	94.5	96.6	96.6	96.6	96.6
Sundries	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Combined	96.1	95.8	95.4	94.3	94.3	94.3	95.6	96.1	97.3	97.7	97.5	97.4

1912

Food	101.0	102.9	100.7	98.7	103.3	99.2	100.6	100.3	101.2	103.0	103.2	100.2
Clothing	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	99.8	99.8
Shelter	102.0	102.0	102.0	102.0	102.0	102.0	102.0	102.0	102.0	102.0	102.0	102.0
Fuel and Light	97.6	97.6	101.2	101.8	101.8	97.5	97.5	97.5	99.6	103.9	103.9	103.9
Sundries	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Combined	100.7	101.5	100.7	99.9	101.9	99.9	100.4	100.3	100.8	101.9	101.9	100.6

Table 6. — *Cost of Living Index Numbers by Elements* — Continued

1913

ELEMENTS	January	February	March	April	May	June	July	August	September	October	November	December
Food	98.2	96.9	97.9	99.7	99.3	101.4	102.2	101.5	100.5	101.7	101.8	101.2
Clothing	99.7	99.7	99.7	99.7	99.7	99.7	99.7	99.7	100.9	100.9	100.9	100.9
Shelter	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Fuel and Light	104.3	102.2	102.2	95.7	95.7	95.7	97.8	100.0	100.0	102.2	102.2	102.2
Sundries	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Combined	99.4	98.7	99.2	99.6	99.4	100.3	100.8	100.6	100.2	101.0	101.0	100.8

1914

Food	102.1	101.9	101.6	99.5	98.9	101.1	103.3	105.3	105.7	107.2	105.0	103.9
Clothing	101.5	101.7	101.7	101.7	101.7	101.7	101.7	101.7	102.0	103.3	103.3	103.3
Shelter	103.5	103.5	103.5	103.5	103.5	103.5	103.5	103.5	103.5	103.5	103.5	103.5
Fuel and Light	101.9	101.9	101.9	95.5	95.5	95.5	97.3	99.5	99.5	99.5	99.5	99.5
Sundries	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Combined	101.8	101.8	101.6	100.4	100.1	100.6	102.1	103.1	103.3	104.1	103.2	102.7

1915

Food	103.2	101.1	98.5	99.4	100.6	100.3	100.7	99.7	101.0	102.7	104.2	103.0
Clothing	105.8	106.8	106.8	106.8	106.8	106.8	106.8	106.8	107.5	108.8	108.8	108.8
Shelter	104.1	104.1	104.1	104.1	104.1	104.1	104.1	104.1	104.1	104.1	104.1	104.1
Fuel and Light	101.1	101.1	101.1	94.2	94.2	94.2	96.4	98.5	98.5	98.5	98.5	100.7
Sundries	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.5	101.0	101.3	101.5
Combined	102.9	102.1	101.0	101.0	101.5	101.4	101.7	101.4	102.2	103.2	103.9	103.5

1916

Food	105.5	106.5	107.2	108.8	110.0	113.3	112.4	112.1	116.0	117.3	122.2	124.7
Clothing	114.5	115.4	115.4	105.3	121.2	121.2	121.2	121.2	121.6	125.2	125.2	125.2
Shelter	105.3	105.3	105.3	105.3	105.3	105.3	105.3	105.3	105.3	105.3	105.3	105.3
Fuel and Light	101.3	101.3	101.3	101.3	99.2	101.3	101.0	102.9	102.9	106.9	113.3	113.3
Sundries	102.0	102.3	102.5	103.0	103.3	103.5	104.0	105.0	106.0	107.0	108.0	109.0
Combined	105.7	106.3	106.7	108.2	108.7	110.3	109.9	110.1	112.1	113.6	116.2	117.5

1917

Food	.	126.2	129.1	132.0	137.5	142.1	147.5	142.9	143.6	149.3	153.1	153.8	155.7
Clothing	.	137.7	138.9	138.9	138.9	138.9	135.0	145.0	145.0	145.6	159.9	159.9	159.9
Shelter	.	103.1	103.1	103.1	103.1	103.1	103.1	103.1	103.1	103.1	103.1	103.1	103.1
Fuel and Light	.	113.2	113.2	113.2	114.7	114.7	114.7	114.7	114.7	114.7	114.7	114.7	114.7
Sundries	.	110.0	110.0	112.0	113.0	114.0	116.0	117.0	119.0	122.0	124.0	128.0	130.0
Combined	.	119.6	121.1	122.7	125.3	127.5	131.0	129.3	130.0	133.1	137.1	138.2	139.6

1918

Food	.	155.8	159.3	154.4	150.9	155.9	162.6	165.2	170.5	178.3	179.0	180.3	183.1
Clothing	.	176.5	180.4	180.6	193.6	193.6	193.6	201.3	201.3	202.4	209.4	209.4	209.4
Shelter	.	111.7	111.7	111.7	108.2	108.2	108.2	108.2	108.2	108.2	116.4	116.4	116.4
Fuel and Light	.	125.3	125.3	125.3	125.3	125.3	125.7	132.1	132.1	132.1	132.6	133.8	143.1
Sundries	.	134.0	136.0	140.0	143.0	146.0	150.0	151.0	152.0	153.0	154.0	155.0	155.0
Combined	.	144.6	147.0	145.7	145.0	148.7	152.4	155.1	157.6	161.3	164.2	165.0	166.1

1919

Food	.	180.1	174.2	174.1	176.6	179.7	181.0	182.2	187.4	182.0	184.7	188.9	189.1
Clothing	.	221.5	223.5	223.8	235.3	235.8	235.8	235.8	237.2	240.9	256.3	271.6	272.3
Shelter	.	118.4	118.4	118.4	115.5	115.5	115.5	115.5	115.5	115.5	129.6	129.6	129.6
Fuel and Light	.	143.1	135.1	135.1	135.7	140.0	144.3	145.8	150.1	150.1	150.7	152.9	153.5
Sundries	.	155.0	155.0	155.0	156.0	158.0	160.0	163.0	165.0	167.0	172.0	175.0	175.0
Combined	.	167.5	164.7	164.7	167.0	169.1	170.3	171.5	174.6	173.1	179.9	184.5	184.7

1920

Food	.	200.9	195.5	198.9	198.2	207.9	207.9	216.9	205.1	202.5	194.7	187.2	179.6
Clothing	.	286.2	291.3	299.8	305.5	302.0	288.4	280.9	282.9	285.9	268.9	258.3	226.0
Shelter	.	131.0	131.0	133.8	133.8	134.9	139.4	139.4	142.4	147.8	147.8	150.6	151.7
Fuel and Light	.	154.2	160.7	161.6	170.8	171.1	171.7	172.1	175.0	188.5	189.2	190.0	189.9
Sundries	.	175.9	175.9	175.9	183.0	183.0	185.0	185.0	185.0	188.0	190.0	192.0	192.0
Combined	.	192.0	190.8	193.4	196.3	200.3	199.7	202.6	198.5	200.1	194.9	191.3	183.9

Table 6. — Cost of Living Index Numbers by Elements — Continued

1921

ELEMENTS	January	February	March	April	May	June	July	August	September	October	November	December
Food	171.5	158.6	145.1	142.1	135.3	133.5	139.5	142.0	139.9	138.7	137.2	139.4
Clothing	219.9	214.4	208.2	206.5	201.6	197.1	191.8	187.1	186.7	186.2	187.6	186.1
Shelter	151.7	151.7	152.2	156.3	159.4	159.4	159.4	159.4	161.0	161.0	161.0	161.0
Fuel and Light	188.8	188.3	187.5	177.4	176.8	176.1	175.9	175.9	175.4	180.9	180.0	180.5
Sundries	192.0	190.0	190.0	188.0	188.0	185.0	183.0	183.0	180.0	180.0	180.0	178.0
Combined	179.5	172.9	166.4	164.5	161.4	159.4	160.8	161.4	160.0	159.7	159.2	159.6

1922

Food	136.1	135.6	133.1	135.4	134.0	134.1	137.2	136.3	136.3	138.2	139.9	139.8
Clothing	180.1	179.2	176.9	176.5	176.1	176.5	176.1	174.9	177.6	178.4	179.1	179.4
Shelter	162.5	162.5	162.5	162.5	162.5	162.5	162.0	162.0	162.0	162.0	162.5	162.5
Fuel and Light	174.9	174.9	173.7	172.8	172.8	172.7	172.0	172.9	177.0	182.6	184.5	184.8
Sundries	178.0	177.0	177.0	174.0	174.0	174.0	174.0	172.0	169.7	169.7	169.7	168.8
Combined	157.3	156.8	155.3	155.6	154.9	155.0	156.2	155.3	155.4	156.6	157.7	157.5

1923

Food	139.3	141.3	138.8	139.3	141.0	140.0	143.4	142.0	143.5	144.9	142.0	144.1
Clothing	178.0	182.2	182.8	184.0	183.2	181.1	182.1	182.2	183.4	185.9	187.0	186.1
Shelter	162.5	162.5	164.5	166.0	166.5	167.0	167.0	167.0	167.0	167.5	167.5	167.5
Fuel and Light	184.8	184.2	178.2	178.6	177.5	177.4	178.2	177.0	177.7	181.6	182.1	181.7
Sundries	168.8	168.8	168.8	170.5	170.5	170.5	170.5	170.5	170.5	170.5	170.5	170.5
Combined	157.1	158.5	157.5	158.5	159.1	159.9	160.1	159.5	160.3	161.6	160.5	161.3

1924

Food	141.0	139.9	139.0	136.1	136.4	137.1	137.5	138.5	142.4	142.1	141.5	143.0
Clothing	186.8	187.4	186.0	181.0	183.3	181.6	181.4	178.8	180.6	180.1	178.4	181.2
Shelter	168.0	168.0	168.0	168.0	168.0	168.0	168.0	172.0	172.0	172.0	172.0	172.0
Fuel and Light	178.4	178.6	178.8	177.1	177.0	177.2	177.5	177.4	178.6	179.3	179.5	179.6
Sundries	171.4	171.4	171.4	171.4	171.4	171.4	171.4	170.5	170.5	170.5	170.5	172.2
Combined	160.1	159.7	159.2	157.7	157.6	157.7	157.8	158.4	160.5	160.3	159.8	161.2

1925

Food	144.7	142.8	144.4	143.4	143.7	146.8	147.9	150.3	150.3	153.1	154.1	155.6
Clothing	177.9	177.6	181.6	181.2	180.8	182.3	182.1	180.7	181.1	181.5	182.1	186.6
Shelter	172.0	172.0	172.0	172.0	172.0	172.0	172.0	172.0	170.0	170.0	170.0	170.0
Fuel and Light	179.9	180.0	175.6	175.7	173.7	176.6	178.5	181.2	181.2	181.2	186.4	197.4
Sundries	172.2	172.2	172.2	172.2	172.2	172.2	172.2	171.4	171.4	171.4	171.4	172.2
Combined	161.5	160.6	161.6	161.1	161.2	162.8	163.4	164.4	163.9	165.1	165.9	168.0

1926

Food	151.8	153.9	149.2	151.9	148.0	148.3	147.7	145.4	146.8	147.3	147.4	147.9
Clothing	184.5	181.7	182.3	179.2	180.3	181.2	178.6	178.7	177.0	177.7	177.5	177.5
Shelter	170.0	170.0	170.0	170.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0	168.0
Fuel and Light	214.6	198.0	183.3	181.4	181.9	182.0	183.3	184.4	184.4	185.2	185.7	185.5
Sundries	172.2	172.2	172.2	172.2	170.5	170.5	169.7	169.7	169.7	170.5	171.4	171.4
Combined	167.0	166.6	163.9	164.5	162.3	162.5	161.9	160.9	161.3	161.8	162.1	162.3

1927

Food	145.9	143.7	142.1	143.4	145.7	145.5	142.8	142.2	142.6	142.1	144.6	145.0
Clothing	176.1	176.3	175.1	175.0	173.9	173.3	170.2	171.6	172.5	172.1	172.8	172.8
Shelter	168.0	168.0	166.0	166.0	166.0	166.0	166.0	165.0	165.0	165.0	165.0	165.0
Fuel and Light	185.4	185.3	181.6	181.6	178.5	178.4	179.0	179.3	181.5	181.5	181.5	181.4
Sundries	171.4	171.4	171.4	170.5	170.5	170.5	170.5	170.5	169.7	169.7	170.5	170.5
Combined	161.2	160.3	159.0	159.2	159.9	159.7	158.6	158.0	158.2	158.0	159.3	159.5

1928

Food	145.4	144.2	142.2	144.6	146.1	144.6	148.6	149.3	152.7	150.0	149.0	147.6
Clothing	172.6	172.6	172.6	171.7	173.8	172.1	172.5	170.9	171.5	169.3	171.5	172.8
Shelter	165.0	165.0	165.0	165.0	165.0	165.0	165.0	163.0	163.0	163.0	163.0	163.0
Fuel and Light	181.4	181.4	181.2	175.4	175.4	175.4	175.4	175.5	177.9	177.9	179.7	179.6
Sundries	170.5	169.7	169.7	168.8	170.0	170.0	170.0	170.0	170.0	170.0	170.0	170.0
Combined	159.6	158.9	158.0	158.4	159.6	158.7	160.5	160.3	161.9	160.5	160.5	160.0

Table 6. — Cost of Living Index Numbers by Elements — Concluded.

1929

ELEMENTS	January	February	March	April	May	June	July	August	September	October	November	December
Food	148.5	146.5	147.6	147.7	149.1	148.1	151.8	154.7	153.0	152.1	149.3	148.9
Clothing	173.3	170.1	174.1	173.6	173.6	173.6	172.2	173.6	173.2	173.5	173.6	174.0
Shelter	163.0	163.0	163.0	163.0	163.0	163.0	163.0	163.0	163.0	163.0	163.0	163.0
Fuel and Light	179.5	179.6	179.7	177.9	174.2	174.2	176.4	176.3	178.9	179.0	179.1	179.3
Sundries	170.0	169.2	169.2	168.9	168.9	167.9	167.7	167.7	167.7	168.4	169.2	169.2
Combined	160.5	159.0	160.0	159.8	160.2	159.6	161.1	162.5	161.9	161.7	160.7	160.6

1930

Food	146.4	145.8	141.9	142.1	141.7	139.3	137.6	136.6	137.2	137.0	132.9	130.8
Clothing	173.6	173.6	173.5	173.3	173.1	173.0	172.4	172.7	171.6	168.8	165.5	164.0
Shelter	163.0	163.0	163.0	163.0	163.0	161.0	161.0	161.0	161.0	161.0	161.0	160.5
Fuel and Light	179.4	179.4	178.3	178.1	170.7	170.7	172.1	174.3	175.0	175.8	175.4	175.5
Sundries	169.2	168.1	167.2	167.2	167.0	166.9	166.5	165.7	165.7	165.3	165.6	165.0
Combined	159.4	158.9	157.0	157.1	156.4	155.0	154.2	153.7	153.9	153.4	151.2	149.9

1931

Food	128.5	121.3	120.9	118.9	115.9	115.0	115.7	117.0	117.4	115.1	111.6	107.8
Clothing	162.4	157.4	156.6	154.5	151.0	149.2	149.1	148.6	148.4	148.0	145.8	145.0
Shelter	160.5	156.0	156.0	156.0	155.0	155.0	155.0	153.0	153.0	151.0	151.0	151.0
Fuel and Light	173.5	173.4	173.8	166.0	163.1	163.1	164.9	163.5	167.5	168.3	168.7	168.1
Sundries	164.2	163.8	162.2	161.3	158.8	157.5	157.5	157.0	157.0	156.6	156.0	154.6
Combined	148.6	143.9	143.3	141.5	141.1	140.2	145.0	140.4	140.7	139.3	137.5	135.7

Appendix II

FUEL STATISTICS

Table 1. — Anthracite — Total Production, New England Receipts, Imports
(Net Tons)

	United States Production	New England Receipts	New England Imports
1916	87,578,000	10,715,000	109 ¹
1917	99,612,000	11,680,000	835 ¹
1918	98,826,000	13,621,000	434
1919	88,092,000	10,578,000	1,694
1920	89,598,000	11,255,000	993
1921	90,473,000	11,374,000	1,289
1922	54,683,000	6,471,000	92,321
1923	93,339,000	12,184,000	144,583
1924	87,927,000	10,611,000	92,640
1925	63,839,000	8,280,000	224,023
1926	85,454,000	10,612,000	387,458
1927	80,647,000	9,146,000	106,157
1928	76,746,000	9,376,000	369,036
1929	76,888,000	9,040,000	483,979
1930	69,732,000	8,390,000	657,987
1931	59,667,000	7,084,000	610,648

¹ Fiscal year ending June 30.

Table 2. — Bituminous Coal — Total Production, New England Receipts, Imports
(Net Tons)

	United States Production	New England Receipts	New England Imports
1916	502,520,000	24,122,000	677,809 ¹
1917	551,791,000	23,504,000	399,914 ¹
1918	579,386,000	27,171,000	407,056
1919	465,860,000	18,182,000	24,373
1920	568,667,000	22,434,000	67,331
1921	415,922,000	17,188,000	26,388
1922	422,268,000	18,807,000	2,258,330
1923	564,565,000	23,684,000	687,170
1924	483,687,000	18,877,000	46,814
1925	520,053,000	21,313,000	35,813
1926	578,290,000	21,087,000	62,364
1927	520,684,000	22,426,000	53,096
1928	493,252,000	19,652,000	76,889
1929	526,361,000	21,311,000	50,114
1930	461,879,000	19,901,000	32,385
1931	378,241,000	17,999,000	66,830

¹ Fiscal year ending June 30.

Table 3. — New England All-Rail Movement of Coal as shown by Number of Cars
of Coal passing East through the Gateways
(Daily Average)

YEAR	ANTHRACITE				COMMERCIAL BITUMINOUS			
	Boston & Maine	Boston & Albany	New York, New Haven & Hartford	Total	Boston & Maine	Boston & Albany	New York, New Haven & Hartford	Total
1921	169	74	207	450	87	66	125	278
1922	109	39	124	272	57	52	100	209
1923	186	75	217	478	97	105	129	331
1924	161	60	205	426	52	49	108	209
1925	126	46	167	339	77	61	135	273
1926	168	57	234	459	78	68	148	294
1927	140	50	210	400	74	62	135	271
1928	137	47	245	429	68	49	108	225
1929	134	43	222	399	74	60	121	255
1930	101	47	202	350	62	51	110	223
1931	75	32	177	284	49	40	102	191

Table 4. — *New England Fuel Imports by Origin — 1931 Calendar Year —*

(Net Tons)

ANTHRACITE					
Origin	Maine and New Hampshire	Massachusetts	Rhode Island	Connecticut	Total
Russia	42,323	145,917	43,099	13,703	245,042
United Kingdom	17,002	232,292	79,496	—	328,790
Canada	2,089	—	—	—	2,089
Germany	410	23,207	—	—	23,617
Belgium	—	11,110	—	—	11,110
Total	61,824	412,526	122,595	13,703	610,648
BRIQUETS					
Origin	Maine and New Hampshire	Massachusetts	Rhode Island	Total	
Germany	2,478	44,841	2,159	49,478	
Belgium	—	8,699	—	8,699	
Total	2,478	53,540	2,159	58,177	
COKE					
Origin	Maine and New Hampshire	Massachusetts	Vermont	Total	
Canada	120	—	27	147	
Germany	2,187	10,250	—	12,437	
United Kingdom	—	5,929	—	5,929	
Belgium	—	596	—	596	
Total	2,307	16,775	27	19,109	
BITUMINOUS COAL					
Origin	Maine and New Hampshire	Massachusetts	Vermont	Total	
Canada	56,003	—	106	56,109	
United Kingdom	5,909	4,712	—	10,621	
Total	61,912	4,712	106	66,730	

Table 5. — *Deliveries of Domestic-sized Anthracite for Last Eight Coal Years — The Commonwealth of Massachusetts*

COAL YEAR, APRIL 1 TO MARCH 31	Net Tons
1923-1924	5,132,984
1924-1925	5,114,515
1925-1926	4,243,872
1926-1927	5,087,360
1927-1928	4,744,324
1928-1929	4,912,810
1929-1930	4,703,019
1930-1931	4,177,238
1931-1932 (8 months)	2,254,281

Population 1930 (United States Census) 4,249,614

Table 6. — Freight Tariffs per Gross Ton and Average Retail Price per Net Ton Delivered on Domestic-sized Anthracite for Certain Representative Municipalities of Massachusetts

	Delaware and Hudson, and Philadelphia and Reading Freight Tariffs	Average Retail Prices December 1, 1931	
		STOVE	PEA
Adams	\$3.78	\$14.50	\$12.00
Amherst	4.41	15.05	12.80
Brockton	4.54	15.50	12.85
Fall River	4.16	16.00	13.25
Fitchburg	4.79	16.25	14.00
Framingham	4.54	15.85	12.95
Gloucester	4.54	15.50	12.50
Greenfield	4.16	16.00	13.25
Haverhill	4.91	16.00	13.25
Holyoke	4.16	15.25	12.50
Lawrence	4.91	16.50	13.00
Leominster	4.79	16.50	13.50
Lowell	4.91	16.00	12.75
Lynn	4.28	15.75	13.00
New Bedford	4.16	14.00	11.50
Newburyport	4.28	13.50	11.50
North Adams	3.78	15.00	12.50
Northampton	4.16	15.00	13.00
Norwood	4.54	15.50	12.50
Peabody	4.28	15.50	13.00
Pittsfield	3.78	15.00	11.50
Salem	4.28	15.25	12.75
Springfield	4.03-4.16	15.75	12.50
Taunton	4.40	15.50	12.75
Westfield	4.03	15.50	12.25
Woburn	4.54	15.50	12.00
Worcester	4.41	16.00	13.25
Boston	4.28	14.50-15.50	11.75-12.50
Suburbs	4.28-4.54	14.50-15.50	11.75-12.50

Freight tariffs from mines to tidewater:
To Port Richmond (Philadelphia) for transshipment to Boston, \$2.09. Barge rate, about \$1.30.
To Hoboken, N. J. (New York City Harbor) for transshipment to Boston, \$2.39. Barge rate, about \$1.00.

Table 7. — Population, Number of Dealers and their Deliveries of Domestic-sized Anthracite for Certain Representative Municipalities of Massachusetts

CITY OR TOWN	Population (1930)	Number of Dealers	DELIVERIES (Net Tons)		
			1930-1931 (Coal Year)	†1931-1932 (8 months of Coal Year)	†1931-1932 (8 months of Coal Year) Foreign Anthracite
Boston District*	1,619,616	115	1,677,443	915,964	129,252
Adams	12,697	5	13,353	8,540	0
Amherst	5,888	4	9,774	4,992	0
Brockton	63,797	13	37,939	21,497	4,489
Fall River	115,274	9	68,634	39,420	1,042
Fitchburg	40,692	8	28,003	17,429	390
Gloucester	24,204	5	32,744	20,594	7,479
Greenfield	15,500	5	22,223	10,889	280
Haverhill	48,710	13	55,451	18,502	1,851
Holyoke	56,537	6	51,760	29,696	0
Lawrence	85,068	27	86,467	45,014	11,478
Leominster	21,810	7	22,688	11,221	1,488
Lowell	100,234	20	69,318	38,865	6,598
Lynn	102,320	12	88,486	39,849	9,306
New Bedford	112,597	10	123,515	76,146	125
Newburyport	15,084	5	26,079	22,343	620
North Adams	21,621	8	20,495	12,722	0
Northampton	24,381	7	33,097	23,574	108
Norwood	15,049	5	23,061	11,441	3,057
Peabody	21,345	7	33,580	10,576	3,538
Pittsfield	49,677	11	71,780	41,808	2,238
Salem	43,353	15	66,525	41,242	5,384
Springfield	149,900	18	166,119	78,593	340
Taunton	37,355	4	30,551	20,959	354
Westfield	19,775	5	19,584	10,360	0
Woburn	19,434	6	23,821	11,222	934
Worcester	195,311	22	188,692	96,605	1,920

*Boston District includes the following cities and towns: Arlington; Belmont; Boston Proper; Brighton; Brookline; Cambridge, Charlestown; Chelsea; Dorchester; East Boston; Everett; Hyde Park; Jamaica Plain; Malden; Mattapan; Medford; Melrose; Milton; Neponset; Newton; Quincy; Readville; Revere; Roslindale; Roxbury; Somerville; South Boston; Waltham; Watertown and Winthrop.
†Foreign Anthracite deliveries included in other Anthracite deliveries.



